Making it ‘click’: An investigation of fluency effects on scarcity based persuasive messaging and the moderating role of involvement

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Abstract

Scarcity is a means of persuasion that sees regular usage both by practitioners of marketing and researchers alike. It is often encountered as either a textual warning of a small supply, or observed from nearly empty shelves in stores. This study hypothesized that a fluency effect would occur when those two forms of scarcity would be combined in a way that made them congruent. In turn this fluency effect, combined with the persuasive element of the scarcity cue, would result in higher perceptions of price and value, a more positive attitude towards the product and a stronger buying intention. The level of involvement and the processing style of the participant, the latter of which was represented by the processing depth and the processing time, were expected to moderate this interaction. To test this thesis an online experiment that simulated a wine store visit was created. In it three parts were manipulated, being the scenario that provided a motivation for the store visit and thus served as the manipulation of involvement, texts indicating the store's level of supply and imagery of product shelving which visually signalled the level of supply. The design was a 2 (scarce and abundant) * 2 (high and low level of fluency) * 2 (high and low level of involvement) between-subjects design containing eight cells to which participants were randomly assigned. Three key findings emerge from this study. Firstly, we found that the combination of two congruent scarcity cues did indeed lead to a fluency effect that positively affected the attitude towards the product. Secondly, a high level of involvement positively and strongly affected the price perceptions and value perceptions. Thirdly, the level of involvement did moderate the effects of scarcity and fluency on the dependent variables but was not in turn moderated by the processing depth and the processing time.

1. Introduction

Scarcity has a long history as a subject of study in both the economic and behavioural sciences. When something is scarce, it can force prices up or make the good more desirable. In the behavioural sciences and its applied context, scarcity is commonly used as a means of persuasion. Consumers commonly associate scarcity with expensive limited-edition goods or fast selling and desirable products (Cialdini, 2013). That makes scarcity a useful tool for persuasion. Scarcity is part of a category of persuasive tools called peripheral persuasive messages, which similarly persuade without providing substance (Daiton & Zelley, 2011). The scarce status itself does not provide the recipient with any useful information related to the product itself. Information, which would be useful in a fully rational and careful evaluation. Scarcity, and peripheral persuasive messages in general, are thus reserved for scenarios in which the consumer is not rationally weighing and evaluating their options. On an average day, a consumer faces thousands of persuasive messages and pieces of information, cues as they are called, in need to be analysed and evaluated (American Association of Advertising Agencies, 2007). For the average consumer, it is simply impossible to carefully evaluate every one of these cues. Thus, consumers often do not make fully rational decisions and resort to the use of shortcuts in reasoning called heuristics to safe time (Gigerenzer & Gaissmaier, 2011). Peripheral persuasion, and scarcity by extension, use known shortcuts in the consumer's reasoning to persuade. Scarcity is a well-known form of it.

Scarcity and peripheral persuasive messages with it, have a set of well-defined characteristics and limitations, as best described in the books by Cialdini (2013), Daiton and Zelley (2011), and Fennis and Stroebe (2010). First, scarcity does not function well when it is subjected to scrutiny. It is part of irrational decision-making and is likely to be discarded as a valid cue when evaluated carefully and rationally. It offers no real information that is objectively relevant to the quality or utility of the product. Once intended audiences are aware of this, the appeals quickly lose their strength. Second, the effects of scarcity are limited and less durable as when a person is consciously persuaded. A discussion, debate or presentation that requires more mental effort to process produces stronger and more durable persuasive effects. Third, scarcity excels in persuasion when the information is limited, and uncertainty is relatively high or the time or ability to process the information deeply are limited. Fourth, scarcity has two distinct forms based on the origin of the scarcity. Firstly, scarcity due to exclusivity, achieved through a seemingly limited supply, works best for more luxury and vanity like goods as the exclusivity is part of its appeal (Gierl & Huettl, 2010). Secondly, when scarcity

is caused by the popular demand of a good, it works for a broader range products and scenarios. The scarcity offers an example of the behaviour of peers (van Herpen, Pieters, & Zeelenberg, 2009) and threatens to limit the available choices (Cialdini, 2013) when the product is sold out. Scarcity is thus a versatile persuasive tool with a long history in the scientific literature.

Although scarcity has long been the subject of study, a set of recent developments have prompted the current study. The developments started with a study by van Herpen et al. (2009) and were continued in studies by Parker and Lehmann (2011). They featured three distinct findings. Firstly, they developed a procedure for testing scarcity messages that closely resembled a real-world experience. They created a procedure contained within a survey experiment that featured imagery of a store and products and a scenario. By manipulating all three aspects they could test scarcity in various forms and under varying circumstances. Second, they discovered that scarcity functions almost under any set of circumstances when it is as a result of popular demand. Third, they discovered that scarcity even functions when the popular demand is only suggested by the imagery of a nearly empty shelve and not just when it is explicitly communicated to the participant. These findings open the study of scarcity up to further exploration. One option is the combination of scarcity in both a textual and visual manner, as it would allow for two types of carefully crafted scarcity messages to operate together. This was the subject of this study. While van Herpen, Pieters, and Zeelenberg (2014) tested scarcity in both a textual and visual form, they did not combine these forms nor experimented with possible variations. Furthermore, they focused on the choice of product the participants made and only included other dependent measures to a limited degree. The current study thus set out to explore these findings further with an adapted procedure.

Before starting an exploration, the current study first looked at the literature of information processing. There, the use of variations in imagery, context and scenarios in studies is both common and well understood. A set of articles by Alter and Oppenheimer (2009) and Winkielman et al. (2003) point towards a phenomenon called fluency. This is best described as information that is remarkably easy to understand due to its content or presentation. This remarkable ease can be achieved on purpose by manipulation of information or its presentation. Various forms of fluency exist, but this study focuses on the type of fluency that for example results from a situation in which the associations instilled by hotel advertisement text matched or mismatched their imagery (van Rompay, de Vries, & van Venrooij, 2010). A room described as cosy and warm could have a picture matching that description or one that

was deemed modern and clean. The matching of visual elements and their associations with textual elements and their associations, led to them 'clicking' in the participant's mind. This resulted in what Winkielman et al. (2003) describe as a positive affective sensation. This sensation is the fluency effect and translates into enhanced likability of the message, the product and its source and a recipient that is more likely to accept the message. Fluency literature could thus add to the experiments by van Herpen et al. (2014) in that it offers guidance on what to expect when imagery and text are manipulated to conflict or match.

The general notion or thesis that fluency can positively impact the effectiveness of peripheral persuasive messages is not new. It has been part of arguments posed in the scientific literature, namely in articles by van Rompay et al. (2010) and Shah and Oppenheimer (2007). The latter of which also tested and confirmed the thesis to a limited degree. Both articles present a distinctly different point of view on what happens when a peripheral persuasive message is fluent or not. The first, by Shah and Oppenheimer (2007), points out that the characteristics of fluency benefit peripheral persuasion in two ways. First, it reduces the chances of scrutiny and deep processing and thus increases the chances of acceptance of the persuasive message. Second, it increases the appeal of the fluency's source, in this case the persuasive message. The second point of view comes from an article by van Rompay et al. (2010) and predicts similar effects, but through a different route. They instead claim that fluency would allow the persuasive message to be processed more deeply without losing their effectiveness due to the pleasant processing experience. This would in turn result in stronger and more durable persuasion effects. The fluency literature thus provides two relevant hypotheses for the scarcity literature that serves as a good starting point.

The current study set out to investigate the link between scarcity and fluency and to test both points of view expressed in the fluency literature. In the current study, we proposed that both points of view could be true, and the level of involvement could be the moderating factor that decides through which route fluency affects scarcity. This is due to the nature of involvement as a moderator that is associated with the willingness to invest energy in deeper processing. Lower levels of involvement, thus a situation in which the participant is not really affected by or interested in the outcome of his or her decision, could lead to a fluency effect in line with the point of view presented by Shah and Oppenheimer (2007) revolving around lower chances of scrutiny. High levels of involvement, thus a situation in which the evaluation or outcome matters to the participant, generally leads to deeper processing (Petty, Cacioppo, & Schumann, 1983) and fits well with the point of view presented by van Rompay and Pruyn

(2011) around deeper processing without scarcity losing its potency. The procedure developed by van Herpen et al. (2014) offered the unique possibility of testing all these factors simultaneously in a tested and generalizable design and can be adapted to test the proposed model. We thus close by forming our main research question.

Thus, the question is posed: What are the effects of fluency on scarcity under high and low levels of involvement?

2. Literature review

The second part of this report, the literature review, will be used to dive further into the main variables described in the introduction, consisting of scarcity, fluency, and involvement. The literature review consists of four parts. First, scarcity as a type of persuasive message and the mechanisms through which it operates will be discussed in depth. Second, fluency and its interaction with scarcity and the processing style will be detailed and used as a basis for the basic hypotheses. Third, Involvement will be discussed as a moderator of the effect of fluency on scarcity persuasive messages. Fourth and finally, the inferences and hypotheses will be summarized, and the final hypothesized model will be presented.

2.1. Scarcity and its role in persuasion

Scarcity is the first of three independent variables in this study and a form of peripheral persuasion. This section explores scarcity by first discussing how scarcity works. This is followed by a look at the effects and characteristics of scarcity. Finally, the end of this section and the beginning of the next, will be used to bridge the scarcity and fluency literature.

2.1.1. The mechanics and function of scarcity

Scarcity is well known in popular culture, the study of economics and the study and practise of marketing (Cialdini, 2013). When scarcity is used as a message of peripheral persuasion, it indicates a limited availability of a good or service. Scarcity can, however, function in three ways (Fennis & Stroebe, 2010). Firstly, scarcity can be used to indicate popularity. Persuasive messages emphasizing the number of products or services that have already been sold, make use of the item's popularity. For the consumer, it thus becomes a chance to join a group of peers that have already acquired the good (van Herpen et al., 2009). Secondly, scarcity can signal a potential loss of freedom. The limited nature of the remaining stock threatens to remove a choice from the consumer's list of options. This threat is enough to persuade many consumers (Cialdini, 2013). The third and final route through which scarcity can function is

when the scarcity of a good offers the consumer a chance to be unique due to the possession of a rare item (van Herpen et al., 2014). Dependent on the way scarcity is created, the type of scarcity effect and route changes. The scarcity type used in the studies by van Herpen et al. (2014) and by Parker and Lehmann (2011) is scarcity due to popularity. They used the arguably neutral product of wine. It is also the type of scarcity appeal which was adapted for the current study, as its effects were more pronounced when compared to scarcity based on exclusivity (van Herpen et al., 2014).

2.1.2. The characteristics and effects of scarcity

Scarcity has four main characteristics, according to different studies. First, scarcity is translated into inferences about quality, popularity or exclusivity, dependent on the source of the scarcity. In this study and the study by van Herpen et al. (2009) scarcity due to high demand was used. This type of scarcity works through an enhanced perception of popularity of the product. Second, scarcity affects a wide range of persuasion outcomes due to its universally applicable and simple nature. Scarcity increases and enhances positive attitudes towards a product (Brannon & Brock, 2001). Furthermore, it enhances the perception of both value and price. This means that when a product is scarce, consumers both expect to pay a higher price in stores for a product and assign a higher value to it (Sehnert, Franks, Yap, & Higgins, 2014). Finally, in a choice scenario, scarce products are clearly preferred over abundant products (van Herpen et al., 2009). Third, scarcity loses most of its appeal when processed deeply and thoroughly, according to studies by Brannon and Brock (2001) and by van Herpen et al. (2014). This is in line with a textbook definition of peripheral persuasive messages found for example in the book by Daiton and Zelley (2011). When peripheral persuasive messages are processed more thoroughly the recipient is more likely to realize that the message is largely unsubstantiated. Fourth and finally, scarcity functions both as image and as a textual persuasive message (van Herpen et al., 2014). A picture of a nearly depleted stock of wine was deemed just as scarce and persuasive as a text explaining the wine's limited stock. In studies, the scarce status is often made focal or unavoidable. Maintaining a scarcity effect while merely suggesting scarcity through an image is new and opens the use of scarcity to new approaches. These four characteristics form the basis of the use of scarcity in the current study, the basis for the study's thesis and for the first hypothesis.

H1: Scarcity positively affects the price perception, value perception, attitude towards the product and buying intention.

2.2. Fluency and the effects of cue congruency

Scarcity, as described in the previous section, is a flexible and effective persuasive message in a wide range of circumstances and studies. It is however only effective when processed shallowly (Daiton & Zelley, 2011) and that carries two downsides. First, the shallow processing required for its effectiveness means that scarcity is mostly limited to relatively small and fleeting effects. Second, as soon as scrutiny comes into play, for example in scenarios where the recipient is deeply involved with the product, then scarcity is likely to lose its potency. The findings by van Herpen et al. (2014) that scarcity functions both in visual and textual version formed the starting point of the current study and the link to the second dependent variable called fluency. Their findings beg the question what happens when multiple forms of scarcity, such as a textual and visual version are combined. Studies by DeMofta, Chao, and Kramer (2016) and by van Rompay et al. (2010) provide a possible answer. They reported strong effects in the formation of attidues when multiple cues on the same subject matched or conflicted. They reported a so-called fluency effect. We thus argue that a situation with multiple forms of a scarcity cue should produce a similar effect. This fluency effect is known to affect attitude formation and the way participants process information (Alter & Oppenheimer, 2009). We continue this section by discussing fluency more in-depth by first providing it with a background from the scientific literature and then a definition for the current study. This is followed by describing known links between fluency and the processing style and we close this section by discussing two points of view provided by the scientific literature on the possible effects of fluency on peripheral persuasion.

2.2.1. Definitions of Processing and conceptual fluency

When a consumer processes a persuasive message, they make judgements about the processing experience itself. This is largely done without the consumer being consciously aware of it (Oppenheimer, 2008). If the processing is deemed remarkably easy the consumer unknowingly registers this ease of processing. This reduced effort of processing is then, according to a review on fluency literature by Reber, Schwarz, and Winkielman (2004), translated into an overall pleasant sensation and attributed to the message and its source. This sensation is a form of fluency called processing fluency. There also exists conceptual fluency, which is a type of processing fluency. Conceptual fluency results from situations in which new information is in alignment with existing inferences, associations or attitudes. This type of information is considered easier to process, as the information is expected, and thus generates a fluency effect. An increase in the level of conceptual fluency of a cue has been

achieved through various methods. When the associations of product shapes, their names and the typeface on the label are congruent, the appreciation for the product and the price consumers are willing to pay will significantly increase, as reported in the article by van Rompay and Pruyn (2011). Similarly, matching the context (surrounding content) of an ad with the ad itself creates a level of fluency and in turn will enhance the ad's effectiveness (Chang, 2013). For the purposes of this study we use the term "fluency" to refer both to processing and conceptual fluency as conceptual fluency is considered to be a form of processing fluency (Alter & Oppenheimer, 2009). Furthermore, other forms of fluency fall outside this study's scope.

2.2.2. The effects of processing and conceptual fluency

The effects of both processing and conceptual fluency can be summarized in four overarching observations divided into two categories. One category concerns its effect on the processing style and information processing and another for fluency's effects on consumer behaviour. We discuss both in turn. First, fluent information leads to quicker, frugal and less thorough forms of information processing (Oppenheimer, 2008). Second, processing fluency can make processing itself feel pleasant and remove the inherent unease associated with spending cognitive energy on processing (Winkielman et al., 2003) that is normally present (Kool, McGuire, Rosen, & Botvinick, 2010). Third, processing fluency may affect stimuli both directly and indirectly. Processing fluency may work directly and can be attributed to the message or indirectly and to its source. This has been made apparent in studies where advertisements were directly impacted and better liked when made fluent (Leonhardt, Catlin, & Pirouz, 2015) and fluent information was considered more truthful (Reber & Schwarz, 1999). Indirect fluency effects can be observed when attributes of a product, like the label, shape, and name, are congruent and thus become fluent (van Rompay & Pruyn, 2011). This fluency effect resulted in a higher appreciation of the product. Another example comes from a study by Shah and Oppenheimer (2007). They influenced the attractiveness of a hotel by manipulating the readability of its consumer reviews in a way that made them remarkably easy or difficult to process. Both studies featured a piece of information which was made fluent and resulted in the fluency effect being attributed to the company and not the message.

Fluency is known to affect consumer behaviour as well. This is where the fourth observation comes in. Effects found when studying fluency in persuasion indicate that it shares features with peripheral persuasive messages. Its effects include the increased attractiveness of products, an enhanced value perception and a more favourable attitude towards the product or

brand (Alter & Oppenheimer, 2009). Furthermore, once asked about the effect of fluency participants point towards another factor to explain their behaviour or start scrutinizing the fluency effect. In the latter case, fluency, like scarcity, is likely to lose its effectiveness (Alter & Oppenheimer, 2009). Fluency is a conceptually simple, but practically fluid and vague concept that leads to a wide range of effects and is closely tied to the processing style. It is therefore still frequently subject to study and subject to development. Especially there were it interacts with other fields of study. Based on the inferences posed in this section we expect fluency to affect similar dependent variables as scarcity and for it to affect the processing style. We will move on to discuss the processing style and its connection to fluency more in-depth.

H2. Fluent information about a product leads to an enhanced price perception, value perception, attitude towards the product and buying intention.

2.2.3. The role of processing style in the study of fluency and persuasion

The level of processing or the processing style plays a central role in persuasion in general, and more specifically in the study of both scarcity and fluency. It represents the way in which a task, decision or evaluation is undertaken and which mental recourses are used for it (Daiton & Zelley, 2011). In case of the Elaboration Likelihood Model of persuasion, used since the 1980s to model persuasion and its outcomes (Kitchen, Kerr, Schultz, McColl, & Pals, 2014), the processing style represents the elaboration or scrutiny a persuasive message receives. The model predicts that the processing style is largely responsible for the success or failure of a persuasive message, such as a persuasive message that uses scarcity. Generally, two levels of processing are distinguished. The first is relatively deep and extensive and the second one quick and superficial (Daiton & Zelley, 2011). Scarcity, as described before, only succeeds in the latter case due to it failing under scrutiny. The processing style itself can in turn be influenced by any factor that influences the ability or motivation of a recipient to process the persuasive message deeply, like the involvement of the audience or the available mental energy. Fluency is thought to increase the chances that the second style will be used (Oppenheimer, 2008). Fluency, like involvement, seems to affect the processing style through the motivation to process. It does so by lulling the recipient into a state wherein they are more likely to mindlessly accept the fluent cues, as everything about it seems to ‘click’ and fit. The processing style thus plays an important role in both the study of fluency and scarcity.

The processing style itself is too complex and general to measure, manipulate or define. So far, we have therefore referred to two of its aspects, namely processing depth and time. They each represent an aspect of the processing style, namely the energy that a recipient invested into the evaluation of a persuasive message or cue and the actual time it took. In studies by Gigerenzer and Brighton (2009) and van Rompay et al. (2010), the need for both types of representations of the processing style has been argued. Thus, in the current study we chose two factors to represent the processing style, namely the processing depth and the processing time. As with other persuasion literature that is based upon the underlying Elaboration Likelihood Model's framework for persuasion, the processing style plays a moderating role in the current study and is only measured and not manipulated directly. In our model, the processing style serves a double role. First, it moderates the effects of scarcity as a persuasive message and the effect both fluency and involvement have on it. Second, it is in turn affected by fluency and the level of involvement. Fluency, as described before, often leads to quicker and more superficial information processing (Oppenheimer, 2008) and thus affects the processing style. We elaborate further on the effects of involvement on the processing style in the third section, which is dedicated to it. We continue to be built upon the effects of fluency on the processing style by describing it in combination with scarcity.

H3: Fluent Information about a product is processed quicker and shallower.

2.2.4. Two points of view for the effects of fluency on peripheral persuasive messages

In the scientific literature, two points of view exist for the effects of fluency on a peripheral persuasive message like scarcity. They both interpret the effects of fluency on the processing style and consumer behaviour described before in a different way. The first point of view is one based upon traditional fluency literature, amongst which articles by Oppenheimer (2008) and Shah and Oppenheimer (2007) and is in line with the third hypothesis. The point of view found there, reads that fluency has been shown to reduce the perceived effort needed to process information and leads to quicker and more shallow processing. Furthermore, according to those authors, a fluent persuasive message is more easily accepted. Peripheral persuasion works best when scrutiny is minimal or absent and thus both attributes of fluency described before are in theory beneficial to a persuasive message that uses scarcity. This general concept was demonstrated in a set of experiments on ad and context congruence by Shapiro (1999) and one set of studies on message congruency by Shah and Oppenheimer (2007). For example, in their small-scale study, Shah and Oppenheimer (2007) tested whether a hard to read (not fluent) or extremely easy to read (fluent) customer review and visual

promotion material of a hotel affected the attitude towards the hotel and not just to the information itself. They found that the fluent customer reviews indeed enhanced the attitudes towards the hotel. This provides the first limited evidence for the first point of view in which an indirect fluency effect resulting from fluency in a persuasive message aids in the overall persuasive potency.

The second point of view found in the scientific literature is one that views the effects of fluency and how they are potentially beneficial to persuasive messages differently. In an experiment concerning hotel room descriptions and their accompanying images, van Rompay et al. (2010) found that a conceptual fluency effect occurred when the image described in the text and the actual image were congruent. In this study, a congruent condition meant that a hotel room described as cosy and warm showed a picture of a room, which was classified by participants as cosy and warm in the pre-test. Furthermore, they found that only those participants with a naturally high inclination towards more effortful and deep processing were affected by the fluency effect. The fluency effect resulted in a higher appreciation of the hotel rooms. The authors argued that the pleasant processing experience of fluent information led to a clearer impression in the participant's mind. The message was processed more deeply without being necessarily subjected to higher degrees of scrutiny. Thus, only participants which processed the message relatively deeply were found to be affected by the fluency effect. Under these circumstances, a peripheral persuasive message could be expected to retain its persuasive power and credibility, even when the level of processing is relatively high. Their point of view is in line with expectations presented in an article by Oppenheimer and Kelso (2015), which presented evidence from various studies in which high levels of processing due to fluency led to enhanced persuasion effects.

Both points of view promise beneficial effects for peripheral persuasive messages when they are fluent. The result of both points of view is the same, namely an enhanced peripheral persuasive message. The type of effect differs. This study thus aims to resolve these opposing points of view and poses two opposing hypotheses. Furthermore, in this study, the operationalization of fluency due to text-image-congruency found in the article by van Rompay et al. (2010) will be adapted and used. We expect that combining a visual and textual version of the scarcity message will result in a text-image-congruency fluency effect. It fits within the theoretical context of scarcity and the general study design of van Herpen et al. (2014). In their study they used a survey that contained visual and textual stimuli and guided participants on their visit of a fictional wine store. There participants had to pick a bottle of

wine from a limited selection. By manipulating the scenario, texts and imagery they successfully managed to manipulate the motivation for the store visit and various forms of scarcity for the wine. Their easily adaptable procedure, successful manipulation of scarcity and their use of imagery to communicate scarcity, makes it suited for use as a basis in this study. Lastly, it is hypothesized by the authors that involvement is the moderating factor in the relationship between fluency and peripheral persuasive messages and decides which type of fluency effect occurs. In this light, both points of view can be correct and have merit. Thus, we propose a hypothesis in which the effects of scarcity on the dependent variables are moderated by the level of fluency. Furthermore, we add two contrasting sub-hypotheses concerning the two points of view and the moderating effect of processing depth. One for each point of view. To possibly unify both points of view, this study proposed an extra moderator in the form of involvement, which we will discuss next.

H4. The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are moderated by the level of fluency and moderated by the processing level.

H4.a. Scarcity messages with a high level of fluency have a stronger effect on the price perception, value perception, attitude towards the product and buying intention through a shallower and quicker processing style, as described by Shah and Oppenheimer (2007).

H4.b. Scarcity messages with a high level of fluency have a stronger effect on the price perception, value perception, attitude towards the product and buying intention through a deeper and slower processing style, as described by van Rompay et al. (2010).

2.3. Involvement and its effect on processing

Involvement is a widely studied factor in the context of advertising, persuasion and information processing. In important persuasion theories, like the Elaboration Likelihood Model, the level of involvement affects the processing style the participant is likely to use. It does this through its effect on the motivation to process deeply and extensively. It is one of the few factors by which the processing style can be influenced. The factor, consisting of a subjective evaluation of the impact of the subject matter on the recipient's life (Cho & Boster, 2005), serves a double role in the context of this study. It serves both as a factor which impacts scarcity based peripheral persuasion messages and as a moderating factor between fluency and those same scarcity based persuasive messages. Involvement shall be discussed in three steps. First, a general outline and definition of involvement and its effects will be drawn.

This is followed by an explanation of the interaction between involvement and scarcity based persuasive messages. Finally, the role of involvement as a moderator between fluency and scarcity is discussed.

2.3.1. A definition and the effects of involvement

Involvement is often a moderating factor in different subjects within the study of persuasion. Involvement has played a role in persuasion since before the inception of the Elaboration Likelihood Model (Petty et al., 1983) and has seen frequent inclusion in studies since (Cho & Boster, 2005). It can best be described as the experienced impact of a decision, a piece of information or evaluation directly or indirectly on the recipient's life. Involvement can be very practical. Buying a car, for example, is often worth more time and effort to a potential buyer than a tube of toothpaste. The impact, in this scenario the amount of money that it costs, is higher (Verhage, 2009). Involvement can also mean that a decision to introduce a special extra exam for senior students at a university becomes reality within one year or after multiple years. When asked for their judgement on such an exam, the students responded differently. In the earlier case the participants in the study were greatly affected and thus involved and in the latter case, the students would not be affected at all by the outcome of the survey on the usefulness of such an exam (Petty et al., 1983). Both examples are regarded as outcome-relevant-involvement in the scientific literature (Cho & Boster, 2005). Regardless of the source of the involvement, high levels of involvement lead to higher levels of processing and lower levels of involvement to lower levels of processing (Petty et al., 1983). It thus follows that both practitioners and scientists have manipulated the level of involvement to create a better fit between the message type and the processing type in order to increase the potency of persuasive messages.

H5: High levels of involvement lead to relatively deep processing and long processing times and low levels of involvement lead to relatively shallow processing and short processing times.

2.3.2. The effects of involvement on scarcity type peripheral persuasion

Experiments involving both scarcity and outcome-relevant-involvement have shown mixed and at times counterintuitive results. In general, studies find that scarcity based persuasive messages are very 'sensitive' to any of the variables that influence the level of processing as shown in a study by Mukherjee and Yun Lee (2016) in which the occupation of mental resources strongly influenced the effectiveness of scarcity. Involvement has a more

inconsistent history with scarcity. A study by van Herpen et al. (2014) showed that scarcity in the case of wine did not succeed as a peripheral persuasion cue when the involvement with wine was completely absent. On the other hand, Göckeritz et al. (2010) showed that low levels of involvement enhanced the effects of peripheral persuasion techniques. Whittler and Manolis (2015) demonstrated this specifically for scarcity. Involvement is a classical manipulation which affects the chosen processing style in the Elaboration Likelihood Model and advertising contexts. Involvement is a prominent factor in the study of peripheral persuasion and scarcity based persuasive messages and requires further study to resolve conflicting findings. Furthermore, and as will be discussed in the next paragraph, involvement may be the moderating variable in the interaction between scarcity and fluency and be decisive as to what type of effects appear.

H6: The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are moderated by the level of involvement so that a low level of involvement leads to increased effects and a high level of involvement to decreased effects.

2.3.3. Involvement as a moderator of fluency effects in persuasion

This study puts forward the level of involvement as a moderating factor in the relationship between fluency and peripheral persuasive messages and as a resolution to the opposing points of view and findings within the fluency literature described before. Low levels of involvement are thought to lead to lower levels of processing and high levels of involvement to higher levels of processing. These effects are predicted to persist when applied to a fluent peripheral persuasive message. Furthermore, it corresponds with the findings of the study by van Rompay et al. (2010) in which they discovered that the fluency effect which led to deeper processing of the persuasive message, occurred only when a participant had the natural tendency to engage in high levels of processing. Thus, when involvement is added to the relation, it could provide a similar function and actively steer the participant towards either high or low levels of processing and an alternative explanation for the findings by van Rompay et al. (2010). It thereby moderates the level of processing a recipient of a fluent peripheral persuasive message engages in. Therefore, the level of involvement is predicted to be the key factor in deciding which type of fluency effect is prevalent. We thus propose a set of hypotheses similar to hypothesis four, to which the level of involvement is added. This variable allows for the distinction between the two points of view described in hypothesis four and serves as the mechanism by which both points of view can coexist.

H7: The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are both moderated by the level of fluency and the level of involvement and moderated by the processing depth and time.

H7A: Higher levels of involvement and high levels of fluency will lead to increased effects on the price perception, value perception, attitude towards the product and buying intention of scarcity persuasive messages when the processing depth and time are high.

H7B: Lower levels of involvement and high levels of fluency will lead to increased effects on the price perception, value perception, attitude towards the product and buying intention of scarcity persuasive messages when the processing depth and time are low.

2.4. An overview of the study and variables

The literature review will be concluded in three parts. First, an overall description of the proposed relationships, the role of each variable and the model are provided. Second, a graphical depiction of the model is provided. Third, this section is closed by listing the seven main hypotheses and their four sub-hypotheses.

We have described relevant findings from scientific literature and hypothesized about the relationships upon which we built our model. In conclusion we go over the complete model briefly. It contains three independent variables, three moderators and four dependent variables. The independent variables being scarcity, fluency and involvement. The level of involvement serving as the moderator for the interaction effect of scarcity and fluency on the dependent variables as well. Further moderation comes from the processing depth and time which represent the processing style. The effects of these variables are measured on four variables, consisting of the price perception, value perception, the overall attitude towards the product and the buying intention. We base the design and included variables largely on findings from the study by van Herpen et al. (2014). In their studies scarcity in imagery and text and involvement have been operationalized and successfully tested, albeit not in the same variations and not in parallel.

This study aimed to fill gaps in the scientific literature and to extend it in three ways. First, it attempted to resolve the conflicting points of view surrounding the interaction between scarcity and fluency by using involvement as a moderator. Second, it aimed to extend studies by Shah and Oppenheimer (2007) in which the thesis that fluency could enhance a peripheral persuasive message was tested to a limited degree. Their manipulation of fluency came from

the blurriness or clarity of imagery and text and is a different type of fluency. The form of fluency used in the current study affects both the applied and scientific field in a completely different way and can be translated to contexts in which clarity plays no role. Third, it adds to both processing style and fluency related literature by measuring both time and a self-reported processing depth. So far in the scientific literature, the relation between the two, and more importantly between them both, involvement and fluency, has been assumed but untested. This gives the current study a testable model and value within the scientific literature.

2.4.1. Schematic representation of the model

Below is an illustration of the relations proposed in the literature review. They are marked with the number of the corresponding hypothesis. For each hypothesis it thus becomes possible to find the relevant scientific background in the literature review and to place the hypothesis in its relevant context by navigating the figure below.

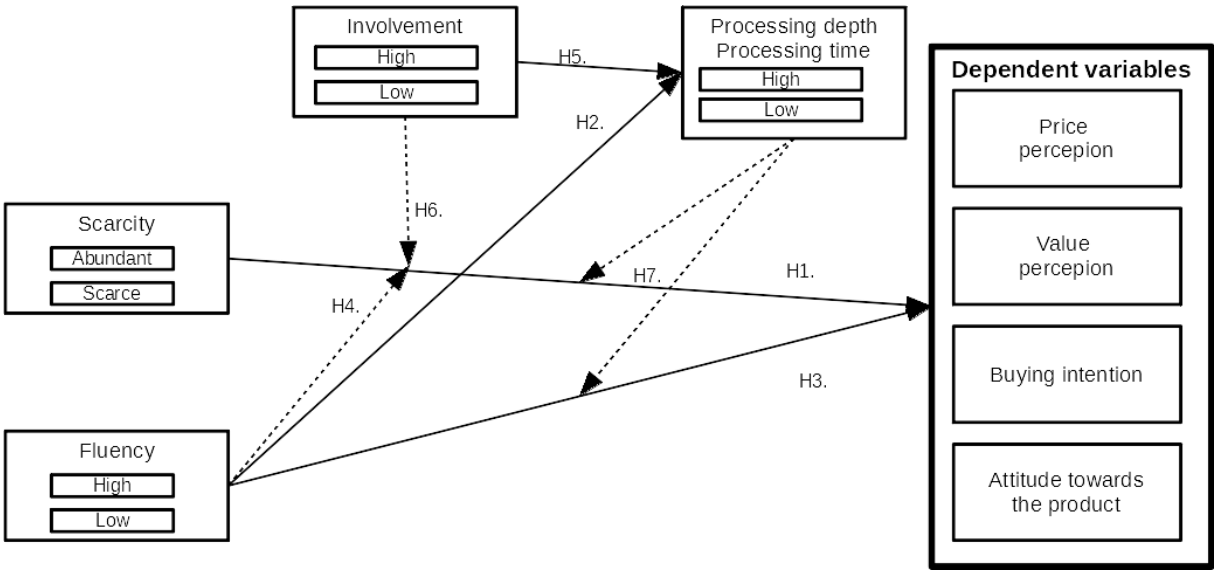


Figure 1. Schematic overview of relations between variables. Dotted lines represent of interaction effects and filled lines main effects. The numbers of each of the associated hypotheses are displayed in the figure.

2.4.2. Hypotheses

What are the effects of conceptual fluency on scarcity type peripheral persuasion messages under varying levels of involvement? To answer this question a set of hypotheses was posed, which are listed in this section.

1. Scarcity enhances the price perception, value perception, attitude towards the product and buying intention.

2. Fluent information about a product leads to an enhanced price perception, value perception, attitude towards the product and buying intention
3. Fluent Information about a product is processed quicker and shallower than information that is not.
4. The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are moderated by the level of fluency and moderated by the processing level.
    a. Scarcity messages with a high level of fluency have a stronger effect on the price perception, value perception, attitude towards the product and buying intention through a shallower and quicker processing style, as described by Shah and Oppenheimer (2007).
    b. Scarcity messages with a high level of fluency have a stronger effect on the price perception, value perception, attitude towards the product and buying intention through a deeper and slower processing style, as described by van Rompay et al. (2010).
5. High levels of involvement lead to relatively deep processing and long processing times and low levels of involvement lead to relatively shallow processing and short processing times.
6. The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are moderated by the level of involvement so that a low level of involvement leads to increased effects and a high level of involvement to decreased effects.
7. The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are both moderated by the level of fluency and the level of involvement and moderated by the processing depth and time.
    a. Higher levels of involvement and high levels of fluency will lead to increased effects on the price perception, value perception, attitude towards the product and buying intention of scarcity persuasive messages when the processing depth and time are high.
    b. Lower levels of involvement and high levels of fluency will lead to increased effects on the price perception, value perception, attitude towards the product and buying intention of scarcity persuasive messages when the processing depth and time are low.

3. Methodology

The central thesis of this study has been discussed and provided with a basis from the scientific literature. In the following part, the methodology and measurement instruments are described. This section is divided into six parts. First, the general design used in the experiment and each of its variables is described. Second, we look at the premise and procedure used in the experiment. Third, we discuss the stimuli developed for this study and the manipulations within them. Fourth, we discuss the independent variables and their manipulation checks. Fifth, we describe the dependent variables and their measurements. Sixth and finally, the demographic data collected of the sample and the sample characteristics are discussed.

3.1. Experimental design

The central thesis of this study ties peripheral persuasion to fluency and hypothesises that both factors can have a symbiotic relationship, the exact outcome of which is moderated by the level of involvement. This thesis was tested by means of an online experiment in Dutch contained within the Qualtrics survey software. The main independent variables, scarcity (scarcity message and no scarcity message) and processing fluency (congruent and incongruent image and text scarcity messages), provide four cells. The moderating factor, the level of involvement, further ads two experimental conditions, which adds up to eight cells in total. Two of the cells contain nested variables due to the manipulation of fluency, which only manifests as a combination of the two cues related to the supply of the product that either correspondent (congruent condition) or contradict (incongruent condition). Participants were randomly assigned to each of the eight cells. The dependent variables consist of price perception, value perception, attitude towards the product and the buying intention. Within the experiment, the level of scarcity, fluency level and level of involvement were manipulated. The chosen design is a post-test only randomized true between-subjects experiment, which compares groups with different manipulations on a single test (Dooley & Vos, 2008). Appendix D includes all items that were part of the study and the constructs they aimed to measure.

Table 1. Shows the 8 experimental conditions resulting from the 2×2×2 interaction.

	Low involvement		**High involvement**	
	Scarcity cue in imagery	**No scarcity cue in imagery**	**Scarcity cue in imagery**	**No scarcity cue in imagery**
Scarcity cue in text	Text and picture are congruent and fluency is high.	Text and imagery are incongruent and fluency is low.	Text and picture are congruent and fluency is high.	Text and imagery are incongruent and fluency is low.
No scarcity cue in text	Text and imagery are incongruent and fluency is low.	Text and picture are congruent and fluency is high.	Text and imagery are incongruent and fluency is low.	Text and picture are congruent and fluency is high.

3.2. Premise and procedure

Participants were invited to a fictional study on wine buying consisting of five stages. In the first stage, each participant was first asked for their explicit voluntary confirmation of participation after being informed of the study's purpose and scope within the confines of the cover story and the necessary deception. After this, the participant was introduced to the study and instructed on how to proceed. The participant was then questioned about their previous experience, expertise and involvement with wine as a product. This was done through a set of six items using a Likert scale, which asked to what extent the participant agreed with statements related to buying wine and the importance of wine. This ended the first stage that served as an introduction to the study.

In the next and second stage, the participant was shown their respective version of the scenario and was afterwards confronted with their assigned visual stimuli. This stage contained all three manipulations and starts with the first of three manipulations, being the level of involvement. In the high involvement condition the participant was asked to buy a red Bordeaux wine for an important business dinner the participant's manager at work is hosting. In the low involvement condition, a researcher outside the liquor store asks the participant to bring a red Bordeaux wine from the store as part of an experiment on wine choice. Upon fictionally arriving in the wine and liquor store, the participant in the scenario asked an

employee for help and was directed towards the wine department and to a section of shelving containing three wines. According to the employee each of the three wines matched the participant's specifications and were of similar price and quality. Imagery was used to convey the setting as a neutral, neither cheap nor expensive store. As part of the second manipulation, the participant was either told one of the wines had nearly sold-out or that all the wines were abundant in stock. The visual representation of the wine shelves contained the third manipulation, the visual level of stock and could be scarce or abundant. This could lead to a situation which either the visual and textual cue were fluent and congruent or not fluent and incongruent with each other. The participant is thus confronted with a scenario in which the objective is to get a bottle of wine. The significance of the bottle of wine and its background were manipulated in accordance with the assigned level of involvement through the scenario and the stock levels in the text and imagery in accordance with the assigned level of scarcity and fluency.

Image 1. Example of a visual stimulus from the visual scarce condition with the accompanying wine labels.

After being shown and told about the wines, the participants were asked which wine they would pick to take with them in order to resolve the scenario. This opens the third stage with all the measurements of the dependent variables. The first one was the time they spend upon their choice, which was done through an automatic timing function of the Qualtrics software suite. Next, they filled in eight 7-point bipolar scales that were anchored on both ends by an opposing property associated with the wine. Four of which were negatively worded. The participants were asked to indicate where the wine placed between the two anchors. The scales measured the perceived popularity, exclusivity, quality and attitude towards the product. Next, participants were asked about their price and value perception of each wine. This was done with two items, one measuring the price they expected to pay and one item that asked them to indicate what they were willing to pay. Furthermore, the participants answered a question about the likelihood of buying each of the wines. This closed the third stage of the experiment in which dependent measures were taken for each wine. This set of questions was repeated for each wine. The order in which each wine was the subject of the scales was randomized to avoid the potential influence the ordering might have on the measurements. The structure of the procedure described so far is in accordance with the procedure of van Herpen et al. (2014), with the addition of a price and value expectancy and buying intention measurements and the adaption of previously employed scales for the purposes of the current study.

In the fourth stage, the participants are subjected to measurements related to the manipulation checks of the independent variables. It opened with a set of six statements on the experienced level of involvement with the situation. The participant was asked to indicate to which extent they agreed with each of the statements on a 7-point Likert scale. Next were six bipolar on the effort the participants expended upon their choice. This was used to measure the processing depth. This measurement instrument is supplemented by a time measurement, which measured how much time each participant had spent upon the choice. The fourth stage closed with a measurement instrument for the level of fluency containing a set of five bipolar items. This ends the fourth stage in which measurements on the manipulation of the independent variables were collected.

The fifth stage contained a set of questions that were used to check if the stimuli met a minimum level of effectiveness. It also contained items for the collection of demographic data. The believability of the cover story was checked with two bipolar items. According to studies by Peracchio and Meyers-Levy (2005), a severe lack of believability impact the

processing style and thus the processing depth and time. Next, was one item which asked the participants on what grounds they made their choice of product and rated the wines. Answering options included label, taste, bottle and name of the product. Next were items intended for the collection of demographic data pertaining to gender, age, occupation and the mastery of the Dutch language. Two items were added to identify participants that had trouble partaking in or finishing the experiment and on which device they partook. The participants were also offered the chance to view a document containing the full scope of the experiment, the questions it tried to answer and details as to every part of the deception they were subjected to. A short version of this page was included in the debriefing as well. The participants were then offered a chance to send questions or comment to the experimenters, after which they were debriefed and thanked for their participation.

3.3. Stimulus material development and pre-testing

Three sets of stimuli were created in the process of conducting this study. The stimuli were mainly created for the purposes of independent variable manipulation. They consisted of scenarios to manipulate the level of involvement, descriptions to manipulate the textual scarcity cue and imagery to manipulate the visual scarcity cue. Two additional stimuli, consisting of a store description and wine label imagery, were developed to support those the stimuli related to the independent variables. All five of them will be discussed in this section.

3.3.1. Development of the involvement manipulating scenario

The scenario served to manipulate the level of involvement and to distract the participant from the study's goal. It was developed based upon the studies by van Herpen et al. (2014) and an overview of studies on involvement by Cho and Boster (2005). This stimulus consisted of two versions of the same scenario in which the participant was asked to imagine themselves visiting a store to acquire a specific type of wine. Wine was chosen as a product and subject in line with the methodology of studies by van Herpen et al. (2009), which was further developed in studies by Parker and Lehmann (2011) and in a second set of studies by van Herpen et al. (2014). The authors argued and demonstrated that wine was a relatively neutral product (van Herpen et al., 2009) that performed very consistent across multiple designs and manipulations and compared well to a multitude of products (Parker & Lehmann, 2011). The scenario differed in the source of the request for the specific wine and it is this source that created the different levels of involvement. Both the length and structure of the scenarios were consistent to avoid the introduction of biases. Furthermore, descriptors of both the store and the source of the request were avoided to ensure the scenarios left open enough

space for the participant to imagine themselves in it. They thus refrained from becoming too detailed.

The scenario had two versions, one for the high level of involvement condition and one for the low level of condition. In the high involvement condition the participant was asked to imagine that their manager from work made the request. He needed a French red Bordeaux wine for a very important business dinner. This manager was responsible for a possible promotion in the near future. The low involvement condition featured a researcher waiting outside a wine and liquor store. The researcher wanted the participant to acquire a French red Bordeaux wine for a study on wine shopping behaviour. Any wine the participant brought would be reimbursed. Thus, between two versions exists a clear difference in the effects of the outcome of their choice. One was designed to transfer a sense of importance, while the other was relatively consequence-free. A pre-test held amongst 60 participants that featured three versions of these scenarios confirmed this. There, the experienced level of involvement was higher for two sets but was strongest for the one used in this study. There the high level of involvement condition (mean = 6,1667, SD = 0,8616) differed significantly [$F(1,24) = 26{,}874$, $p < 0{,}01$] from the low involvement condition (Mean = 4,1429, SD = 1,0917). The scale used for measuring the experienced level of involvement was the same as the one in the main study.

3.3.2. Development of the scarcity manipulation in the text

A second part of the text, that served as an addition to the scenario was similarly manipulated. This time to create a textually scarce and abundant condition. Here, the participant was described entering the store and asking an employee for help in finding the requested French red Bordeaux wine. The employee guides them to the relevant wines and either explains that one of the wines is scarce or that all of them are abundant in supply. Both the structure and length of the text was kept similar to avoid introducing bias. The text purposely left room for the participant's imagination to place themselves in the store and situation. An example of the full text containing both the scenario with the involvement manipulation and the second paragraph containing the textual scarcity manipulation is shown below. This example comes from the high involvement and scarce conditions. Appendix A contains all versions of the textual stimuli in their original Dutch form and the English translation. Appendix B contains the versions used in the study by van Herpen et al. (2014).

Imagine: You work for a company for some time and are up for promotion in the near future. Your manager asks you to buy a bottle of wine for his two guests in an upcoming important business dinner. He trusts you and expects you to buy an appropriate bottle of wine. He explains to you that the guests love French red wine from the Bordeaux region. This dinner can make the difference in an important deal and so everything must go perfectly. You proceed to a liquor store to buy a bottle of wine.

Once in the liquor store, you see a few other customers and an employee. You ask the employee for help and he brings you to a shelve with three wines. He explains that these three wines are of a similar price and quality and that they all fit with the dinner. He also explains that one of the wines has nearly sold out and that the stock on the shelf has almost been depleted. There also does not seem to be any extra stock left in storage.

3.3.3. Development of the visual stimuli

Visual stimuli were developed separately to manipulate the visual level of scarcity and enable the creation of conditions in which both scarcity cues were congruent or incongruent. The stimuli consisted of two images, namely one showing the wine shelves with the wines and one image containing cards that informed the participant about the wine's origin, year and taste. Imagery from the wine shelves always featured three wines of which at least one bottle was sold. This imagery was modelled after the imagery used in studies by van Herpen et al. (2014), shown below. The respective position of each wine on the shelve was randomly assigned for each participant, preventing the order or placement from affecting the outcome. One wine was predetermined to be the one manipulated and, regardless of its position on the shelve, was the one made scarce in the visual scarce condition. This wine had all but two bottles removed. The imagery containing the attributes of the wine was modelled after real-world examples from wine stores. The names were based on existing chateaus that did not produce wine. This ensured a level of realism, without risking the introduction of bias from existing wine brands. The year and country of origin were kept the same. The taste profile and name were randomly assigned for each participant to a wine on the shelve. Taste profiles were designed to be realistic, without enabling the consumer to make a clear distinction between the wines. One wine, for example, could be red berries, Oakwood and sturdy and another's taste profile could consist of blackberries, cedarwood and robust.

Image 1. Example of a visual scarcity stimuli from the study of van Herpen et al. (2014). In this version, shelve spaces vary due to an additional manipulation from their experiment.

Image 2. Example of a set of visual stimuli from the current study based upon previous work by van Herpen et al. (2014). This version shows an image from the visual scarce condition in which the scarce wine was placed in the middle. The contents were translated from Dutch

3.4. Independent variables and manipulation checks

This section focuses upon the independent variables, their manipulation, manipulation checks and the related measurements. A full set of items used in the study is found in appendix D.

3.4.1. Scarcity

Scarcity in this experiment was communicated in both a textual and a visual manner to create the text-imagery-congruence type fluency. The experiment featured a textual cue contained

within the scenario and a visual cue in the imagery. This textual cue indicated that one of the wines the participant was pointed towards was nearly sold-out or that all the wine was abundant. This manipulation is in line with successful manipulations of scarcity found across scientific literature, for example in studies by van Herpen et al. (2009) and by Whittler and Manolis (2015). A second scarcity cue was contained within the imagery of the wine shelve. The shelve showed three wines, one of which could be scarce. In that case, just two bottles were remaining. The scarcity manipulation was checked by two measurements, one that determined if the right type of scarcity was manipulated and another if the participant could identify the scarcity condition they were in.

To check if the manipulation of scarcity met expectations, six items measuring the three constructs of popularity, exclusivity and quality were used. According to studies by van Herpen et al. (2009) and Cialdini (2013), scarcity can be the result of exclusivity or popularity. Thus, dependent on the type of scarcity manipulation, a study would find either the constructs for popularity or quality and exclusivity to differ significantly across conditions. Each construct consisted of two items presented as a 7-point bipolar scale on which the participant indicated where they thought the product placed between the two anchors. Three of the bipolar items had their anchors reversed to discourage the mindless answering of items by participants. An analysis was done for each construct to check if the two items correlated to a sufficient degree. It showed that the items forming the constructs of popularity ($\alpha = 0{,}91$) and exclusivity ($\alpha = 0{,}81$) correlated strongly, while the items for quality ($\alpha = 0{,}77$) did so to a lesser degree. All three correlations were however strong enough to be useful as a measurement instrument. They were each averaged and combined into three separate indexes, one per construct. Two more items were used to measure if the participants could identify in their scarcity condition by indicating to what extent two statements about the scarcity of the products mentioned in the text and shown in the image were true on a 7-point Likert scale. This was done to enable the identification of problems with the stimuli.

3.4.2. Fluency

The level of conceptual fluency or "fluency" was dependent upon the congruency or incongruency of the scarcity claim and the level of stock shown in the image. This was in line with the experiment by van Rompay et al. (2010) where they dubbed this text-image-congruency fluency and confirmed the effectiveness of the manipulation. Congruent conditions showed a wine rack stocked to the level described in the scenario by the fictional employee and incongruent conditions showed a wine rack stocked to opposite levels. There

was a scarce condition and a non-scarce condition, which was represented by an almost full or nearly empty wine rack. This leads to four possible combinations of imagery and text. The effectiveness of this manipulation was measured in two ways. First, a measurement of the manipulation strength was developed from a set of two measurement instruments on processing ease by Labroo, Dhar, and Schwarz (2008) and Lee and Aaker (2004), which was provided with experimental support in studies by Chae and Hoegg (2013). This measurement instrument measures the self-reported level of processing ease based upon the constructs of structure, complexity and difficulty. These constructs were represented by six bipolar items, anchored at both sides, and rated on a 7-point scale. The anchors were easy to understand and hard to understand, unorganized and organized, structured and unstructured, logical and illogical and clear and unclear. The items combined made for a reliable ($\alpha = 0,91$) scale of processing fluency and were averaged in a fluency index score, where higher scores meant a higher experienced level of fluency.

3.4.3. Involvement

The level of involvement was manipulated in the scenario provided to the participants (Appendix A.). Participant in both conditions were asked to buy the same type of French red Bordeaux wine. In this high involvement condition a manager from work was the one asking and in the low involvement condition a researcher outside a store asked for the same wine to be bought. The concept behind this manipulation of involvement was adapted from the experiment by van Herpen et al. (2014) and further developed with the aid of an article on different types of involvement and their manipulation by Cho and Boster (2005). The core of this manipulation rests upon the imagined effects of the decision of which wine to buy in each condition and an adequate difference between them. This is in line with traditional manipulations of outcome-relevant-involvement from Petty et al. (1983). The strength of the involvement manipulation was measured through a measurement instrument adapted from van Herpen et al. (2014) and further developed following an article on involvement and involvement scale development by Cho and Boster (2005). This resulted in six statements (see Appendix D.) rated on a 7-point Likert scale anchored at both extremities by strongly agree and strongly disagree meant to measure the level of outcome-relevant-involvement. Three items were negatively worded to increase reliability and prevent the mindless filling of items. The scale reported a strong inter-item reliability ($\alpha = 0,82$).

3.5. Dependent variables and measurements

This study focused on a set of four persuasion outcomes, namely price and value perception, attitude towards the product and buying intention. The level of processing depth and the processing time served both as moderators and as a dependent variable. Each dependent variable will be described in brief and its measurement instrument will be detailed. Relevant items and scales were translated from their English source to Dutch and adapted to accommodate the Dutch-speaking research population available to the experimenters.

3.5.1. Price and value perceptions

The first and second dependent variables were related to value perceptions of the product. Past studies offered support for a positive effect of both scarcity (Wu & Lee, 2016) and fluency (Motyka, Suri, Grewal, & Kohli, 2016) on the value and price perceptions of a product. Two items were used in the current study to measure the variables. The price perception was measured using an item that asked the participant what they would expect to pay for each wine in a wine store in the Netherlands. The value perception was measured by an item asking what the participant was willing to pay for each of the wines. Both items were based upon earlier studies by Van Rompay, Pruyn, and Tieke (2009) and by Sehnert et al. (2014). The participant was completely free to fill in a price and value.

3.5.2. Attitude towards the product

The third dependent variable is the attitude towards the product. Scarcity is known to affect the extremity of attitudes (Brannon & Brock, 2001) and to impact the overall attitude towards a product in a positive way (Whittler & Manolis, 2015). Fluency, in general, leads to more positive attitudes towards sources and products (Oppenheimer, 2008) due to the positive affective response it creates. Two items were used to measure this variable. Both were bipolar items anchored at both ends along a 7-point scale. The anchors were positive and negative and attractive and unattractive. They were intended to measure the direction of the overall attitude towards each wine as either positively oriented or negatively oriented. The items combined reported a high inter-item-reliability ($\alpha = 0,83$) and were thus included as a measurement instrument. They were combined and averaged into an attitude towards the product index.

3.5.3. Buying intention

Buying intention is a common inclusion in the persuasion literature and the fourth and final effect of persuasion measured during this study. It is the self-reported likelihood that a participant would buy a product or service given a specific set of circumstances. It has been linked to scarcity Parker and Lehmann (2011) and fluency according to Fukawa and Niedrich (2015). In the current study, it was measured using a simple one item scale that asked how likely it was that the participant would buy the wine and was repeated for each of the three wines. Measurement took place along a 7-point scale.

3.5.4. Measurement of the processing depth and time

The processing style was a key determinant of the final persuasion outcome and is thus a variable which was monitored. It featured a double role as both a dependent variable and moderator. Measuring the level of processing is traditionally done indirectly through either the measurement of indicators, like the time needed to reach a decision or persuasion outcomes. In this study, both approaches were utilized, and thus the level of processing was measured in two ways. First, and as was suggested in the study by van Rompay et al. (2010), the time spanning from reading the second paragraph of the scenario to the choice of one of the wines was used as the processing time. This type of measurement is common in some fields of study and successful in its intent to measure the level of processing, as discussed in an article on information processing by Gigerenzer and Gaissmaier (2011). It is however notably lacking from studies revolving around persuasion and fluency, as was for example noted by van Rompay et al. (2010). Higher processing times indicate a higher level and more thorough type of processing.

Second, a direct explicit measurement of processing depth was used. Participants answered three bipolar items on a 7-point scale adapted from a processing ease measurement instrument developed by Ellen and Bone (1991) and which was used for a similar purpose in the study by van Rompay et al. (2010). The scale was further developed and translated to Dutch with aid of an article by Cho and Boster (2005) on involvement that makes use of items measuring processing intensity and effort. The items were anchored by various aspects of deep or shallow processing and included shallow and deep, thoughtful and thoughtless, effortful and effortless and precise and broad. Two items, being the one anchored by effortful and effortless and precise and broad were removed due to an inter-item-reliability that was too low (α = 0,57). The item that remained, anchored by deep and shallow, was the closest to the definition of processing depth and therefore judged to be the most useful. Recent studies by Bergkvist

and Rossiter (2007) suggest that using one item instead of multiple items to measure constructs can have similar predictive power. This idea was tested and found support in a study by Fransen, Fennis, and Pruyn (2010) in which both a behavioural measure and a multi-item version were used to compare the predictive power of the one-item measurement instrument. This is similar to the use of both processing depth and time in the current study.

3.6. Demographic data and sample characteristics

The experiment provided measurements for a set of five demographic variables that have demonstrated the ability to affect persuasion outcomes in past studies. These variables consist of the gender of the participant, the age, employment status, language mastery and personal involvement with wine. In an experiment on peripheral persuasion techniques and resistance, Sagarin, Cialdini, Rice, and Serna (2002) demonstrated that gender can significantly affect the response to peripheral persuasion tactics, such as persuasion based upon the source's authority. Furthermore, scholars interested in resistance to persuasion have established that resistance strategies change in prominence and strength depending on the age of the participant (Fennis & Stroebe, 2010). This was for example demonstrated in a comparison of peripheral persuasion tactics by Kaptein and Eckles (2012) where both age and gender significantly affected the fit of their persuasion modelling. The survey was held in Dutch; hence, the understanding of the Dutch language could have had a significant effect on the effectiveness of the involvement manipulation. Lastly, a measurement instrument was created to measure personal involvement with wine. This instrument measured the constructs expertise, experience and personal relevance with wine through six items on a 7-point scale anchored by strongly disagree and strongly agree. The scale showed great reliability as a combined scale ($\alpha = 0{,}87$). The measurement instrument is an adaption from the wine product involvement scale used by van Herpen et al. (2014) and a personal involvement scale from Göckeritz et al. (2010). These variables are intended to improve the fit of the final model, identify outliers and to exclude alternative explanations.

3.6.1. Sample characteristics

The sample consisted of 670 informed and willing participants, collected through social media and an online scientific panel. A selection was made to exclude those that reported having trouble participating in the experiment (2 participants) and those that did not see the experiment through to its conclusion (255 participants). Finally, participants that failed a check designed to exclude participants that paid no intention to the stimuli at all, were

removed. This check consisted of an item rated on a 5-point Likert scale in which the participant was asked to identify whether both the text and imagery were in agreeance or conflicted on the scarce or abundant status of the product. Participants who answered this item in a way that conflicted with reality were excluded. This group consisted of 86 participants (21,4%), a relatively large part of which came from the low level of fluency condition cells. We shall go more in-depth on this matter in the discussion chapter. This leaves the current study with a sample of 327 participants randomly divided across the eight cells of the design.

Table 2. Showing the distribution of the participants across cells in the design.

		Level of Involvement							
		Low				High			
		Level of Fluency				Level of Fluency			
		Low		High		Low		High	
		Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
Level of Scarcity	Scarce	39	11,9%	47	14,4%	31	9,5%	46	14,1%
	Abundant	30	9,2%	50	15,3%	30	9,2%	54	16,5%
	Total	69	21,1%	97	29,7%	61	18,7%	100	30,6%

Of the remaining participants, the gender was almost perfectly equally distributed with 49,5% of the participants being male and 50,5% female. The age of the participants showed a large spread within the range of 18 to 85 with a mean of 54 and a standard deviation of 15,8677. A large majority of the participants was either employed or their own employer (63%) and another substantial group studied (4%). Others were without current employment (20,2%) or gave their own input (16,8%). All participants enjoyed an adequate mastery of the Dutch language of at least a professional degree. One extra question wherein the participants were asked to select one wine to take home was used to check if any aspect of any of the wines biased the results. The results of this check were negative, as the choice for either one of the three wines was almost equally split in three ways in the control condition. The analysis thus continues based upon a sample of 327 participants randomly assigned to each of the 8 cells. A detailed account of their dispersion amongst the cells of the design can be found in two tables printed on the next page.

Table 3. Showing the distribution of the participant's gender across the cells of the experiment.

				Level of Involvement							
				Low				High			
				Level of Fluency				Level of Fluency			
				Low		High		Low		High	
				Count	In %	Count	In %	Count	In %	Count	In %
Level of scarcity	Scarce	Gender	Man	22	56,4%	19	40,4%	18	58,1%	21	45,7%
			Vrouw	17	43,6%	28	59,6%	13	41,9%	25	54,3%
	Abundant	Gender	Man	15	50,0%	24	48,0%	17	56,7%	26	48,1%
			Vrouw	15	50,0%	26	52,0%	13	43,3%	28	51,9%
	Total	Gender	Man	37	53,6%	43	44,3%	35	57,4%	47	47,0%
			Vrouw	32	46,4%	54	55,7%	26	42,6%	53	53,0%

Table 4. Showing the mean age and standard deviation of the participants per cell of the design.

			Level of Involvement							
			Low				High			
			Level of Fluency				Level of Fluency			
			Low		High		Low		High	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
Level of Scarcity	Scarce	Age	58,64	14,88	52,17	16,79	51,55	15,89	53,41	16,20
	Abundant	Age	50,93	18,34	57,36	13,66	56,80	11,33	50,67	17,28
	Total	Age	55,29	16,79	54,85	15,40	54,13	13,97	51,93	16,76

4. Results

In this next section, the results of the study are explored and analysed. This section shall focus on describing the key results and findings. Commentary on both results and methodology is reserved for section five, the discussion. We open this section by describing the procedure of the analysis and steps undertaken to ensure that the data could be analysed. This is followed by the results of the manipulation checks. We then continue by describing the outcomes of the main statistical test, being a set of two factorial MANOVAs. Individual significant results and insignificant trends are then reported in more depth. Finally, the hypotheses put forward in chapter two are answered using relevant data.

4.1. Initial data analysis and data preparation

The dependent variables, consisting of price and value perception, buying intention and the attitude towards the product, were inspected to see if they met the condition of normal distribution. This was done using QQ and stem and leaf plots and it revealed that the data approached normal distribution with minor skewness. Action was taken to remove extreme outliers of more than 4 standard deviations distance from the mean. In the case of the measurement of time it took for participants to decide, the gap between the outliers and the last reasonably expected observation was very large. A cut-off point of 79 seconds was selected for the processing time. Both price and value perception had less than 10 outliers and were cut-off from values 17 and above. The data now approached normal distribution more closely and was used in the further analysis. Since only one wine was manipulated, referred to as wine number three, the results for this wine are the ones used. The dependent variable associated with the other wines were tested as well and showed no relevant significant results. Lastly, a median split was conducted of the Processing depth and Processing time-independent variables to create dichotomous items out of the continuous scale outcomes.

4.2. Manipulation checks

In the study, three sets of manipulations were used, namely manipulations for the level of involvement, the level of fluency and the level of scarcity. Each of the manipulations used a check to ensure it met minimum requirements for its effectiveness across experimental conditions and had their own measurement instrument to measure manipulation strength.

The strength of the scarcity manipulation was measured in three different scales, aligning with the three types of scarcity experiences that can result depending on the scarcity's perceived source. They were quality, popularity and exclusivity. The scarce wine was rated as

significantly more popular [F (1,144) = 4,094, p = 0,044) on the wine popularity scale. In the abundant condition (mean = 4,512, SD = 0,93) the wine was deemed less popular than in the scarce condition (mean = 4,739, SD = 1,0934). The other two scarcity scales reported no significant differences. This result suggests that the right type of scarcity ended up being manipulated. A second measure that asked the participant to identify whether they were in the scarce condition showed that 85% of participants identified their condition right. This shows that scarcity due to popularity was successfully manipulated.

The level of involvement was measured with six items and formed into an index based upon the mean score over the items. One of the items was removed to form an index based on five items with a high inter-item-reliability ($\alpha = 0,82$). The index showed a significantly higher involvement score [F (1,144) = 46,226, p < 0,001] for those in the high involvement condition (mean = 4,568, SD = 1,0634) than those in the low involvement condition (mean = 3,816, SD = 1,1439). The manipulation for the level of involvement seems to have worked as intended.

The analysis of the manipulation checks for fluency was more complex. A single F-test showed that the effect of the fluency manipulation on the level of fluency index was just short of being significant [F (1,144) = 3,055, p = 0,081) and is a near-significant trend. Those participants in the high fluency condition did score higher (mean = 5,3218, SD = 1,1951) on the fluency index than those in the low fluency condition (mean = 5,0846, SD = 1,21). A separate item measured to what extent participants could correctly identify which fluency condition they were in. It did so by asking the participants to what extent the cues about the stock level of the wine in the text and imagery agreed or conflicted. Around 20% of the participants (21,4%) failed to supply the right answer. As discussed in the sub-section on the sample characteristics, these participants were excluded from the data analysis.

We thus conclude that the results of the manipulation checks were found to be within the range of our predictions and those derived from previous studies. We thus continue with the analysis of the results.

4.3.Procedure for analysis

A factorial MANOVA test of variance was decided upon as the primary statistical test to determine which relations were significant. This test was determined to be the best fit for the design, as the design otherwise required repeated testing of relations resulting from the inclusion of multiple dependent and independent variables. This increases the risk of false positive significant findings (Sainani, 2009). Thus, a test with adequate provisions in its

procedure for this threat was required. Two MANOVA tests were run in total. The first was used to test whether the interaction between the combination of the textual and visual scarcity cues led to the expected fluency effect. Furthermore, it was used to determine whether the hypothesized effects for the level of involvement and the interaction between both scarcity cues upon the processing depth and time could be confirmed. A second MANOVA was then used to further study the results and to test the overall model that included fluency and was illustrated at the end of the literature review. In this test the processing depth and processing time served as moderating variables in the model. Both tests were run in IBM's SPSS statistics software. Significant effects for the multivariate test were reported based upon the Wilk's lambda statistic (Λ) reported in table five, which is a commonly used statistic for MANOVA tests according to Crichton (2000). Effect sizes were reported with the partial ETA squared statistic (partial η^2). Effects are reported in order of increasing complexity, starting with main effects and ending with multifactor interactions.

The effects were then further studied using factorial ANOVA tests of between-subjects effects for those significant relations found in the multivariate tests and selected near-significant trends. Effect sizes were reported using the partial ETA squared statistic of effect size as it allows for the stepwise calculation of the effects of independent variables and interactions one variable at a time while controlling for others (Levine & Hullett, 2002). Near significant results ($\alpha < 0,1$) were reported where relevant to indicate trends commented upon in the discussion section or to report significant underlying effects on single dependent variables. For all analyses, a threshold for significance of 5% was maintained ($\alpha = 0,05$). The full factorial MANOVA table including both significant and insignificant findings and the accompanying set of factorial ANOVA tests of between-subjects effects are included in appendixes E and F. An overview of scientific literature on effect sizes compiled by Watson (2018) based upon books by Cohen (1988) and Miles and Shevlin (2001) was used to determine the evaluations of effect sizes.

4.4. Results of the factorial MANOVA tests of variance

We open the results by discussing the results provided by both MANOVAs. First, main effects and near-significant main effect trends are discussed. Second, we continue by discussing the interaction effects and near-significant trends for which evidence was found. The results are summarized in table 5 and the full results are part of appendixes E and F.

4.4.1. Main effects

The first factorial MANOVA provided evidence for a significant main effect for the level of involvement [F (6,238) = 2,808, p = 0,012]. The size of the effect was medium (partial η2 =0,066). The second factorial MANOVA revealed main effects for the level of fluency [F (4,141) = 4,204, p = 0,003] and a near-significant trend for the level of scarcity [F (4,141) = 2,380, p = 0,055]. The effects for fluency (partial η2 = 0,1,07) and scarcity (partial η2 = 0,063) were both of medium size. The p-values for the main effects of the processing depth and style remained below the threshold of significance for both a significant effect and a trend.

4.4.2. Interaction effects

The first MANOVA revealed the expected interaction between the scarcity cue contained in the text and the one in the imagery [F (6,238) = 2,408, p = 0,028]. The effect size of the interaction was small to medium (partial η2 = 0,057). In the second MANOVA, we found evidence for two significant interaction effects and two near-significant trends relevant to our hypotheses and main research question. We start with the first of two significant findings, being the interaction between scarcity and the processing depth [F (4,141) = 3,502, p = 0,009]. The effect size of the interaction was medium to large (partial η2 = 0,09). A second interaction effect was found for the interaction between scarcity, involvement and fluency [F (4,141) = 2,490, p = 0,046]. The effect of this interaction was judged as medium of size (partial η2 = 0,066). Two relevant trends represented by near-significant findings were discovered. The first trend consists of the interaction between involvement, fluency and the processing time [F (4,141) = 2,369, p = 0,056] with a medium effect size (partial η2 = 0,063). A second near-significant interaction effect was found for the interaction between scarcity, processing depth and processing time [F (4,141) = 2,437, p = 0,051] with a medium effect size (partial η2 = 0,064) as well.

Table 5. Significant relations and near-significant trends found in the factorial MANOVA for both the main and interaction effects. Level of significance used is 5% (α = 0,05). P-values reported above this threshold represent relevant trends.

Independent variable(s)	**Wilk´s Lambda**	**Type of relation**	**F-score**	**P-value**	**Effect size in partial η^2**
Involvement	0,934	Main effect	2,808	0,012	0,066
Scarcity in text * Scarcity in image	0,943	Interaction	2,408	0,028	0,057
Scarcity	0,937	Main effect	2,380	0,055	0,063
Fluency	0,893	Main effect	4,204	0,003	0,107
Scarcity * Processing depth	0,910	Interaction	3,502	0,009	0,90
Scarcity * Involvement * Fluency	0,934	Interaction	2,490	0,046	0,066
Involvement * Fluency* Processing depth	0,937	Interaction	2,368	0,056	0,063
Scarcity * Processing depth * Processing time	0,936	Interaction	2,427	0,051	0,064

4.5. Results of the ANOVA tests of between-subjects effects for main effects

A further analysis of the effects found was conducted using factorial ANOVA tests of between-subject effects. This allowed us to find which dependent variables were affected by the independent variables. The results are summarized in table 6 and a full report can be found in appendixes E and F.

A set of main effects for the level of involvement on three dependent variables was found, using ANOVA tests of between-subjects effects. The tests revealed two trends and one significant finding. It revealed that the level of involvement affected the price [F (1,243) = 3,687, P = 0,057] and value [F (1,243) = 6,897, p = 0,01] perceptions positively, meaning that a higher level of involvement led to a higher value and price perception. In the case of price perception those in the high involvement condition (mean = 8,901) offered on average 85

cents (mean difference = 0,8453) more than those in the low involvement condition (mean = 8,0555), which was just too little to be a significant difference but is a trend in line with the effect on the value perception. For the value perception, the low involvement condition participants (mean = 6,9076) offered 1,20 Euros less (mean difference = 1,1942) than those in the high involvement condition (mean = 8,1018). The effects on the price (partial $\eta 2 = 0,025$) and value perceptions (partial $\eta 2 = 0,046$) were small. A second trend was revealed that indicated that the level of involvement positively affected the processing depth, albeit only nearly significantly [F (1,243) = 3,488, p = 0,063]. The high involvement condition (mean = 3,981, SD = 1,429) featured a slightly deeper level of processing than the low involvement condition (mean = 3,765, SD = 1,384).

For the scarcity manipulation contained within the text, a significant main effect was found [F (1,144) = 4,102, p = 0,045] on the buying intention. The average buying intention in the scarce condition (mean = 4,264, SD = 1,735) was higher than of those participants in the abundant condition (mean = 3,827, SD = 1,1811). The effect size of the observed relation was small (partial $\eta 2 = 0,028$). This finding is considered a relevant trend, as the outcome of the MANOVA was near-significant.

The ANOVA tests of between-subject effects for the manipulation of fluency revealed one significant main effect on the attitude towards the product [F (1,144) = 14,70, p <0,001]. A deeper analysis revealed that the attitude towards the product was significantly more positive in the high fluency condition (mean = 4,8807, SD = 0,9394) than in the low fluency condition (4,5385, SD = 0,884). The size of the main effect was medium to large (partial $\eta 2 = 0,093$). Thus, a participant in the high involvement condition had a significantly more positive attitude towards the manipulated wine, than those that were not.

Table 6. Significant main effects and near-significant trends for the main effects from the factorial ANOVA tests between-subject effects. Level of significance used is 5% (α = 0,05).

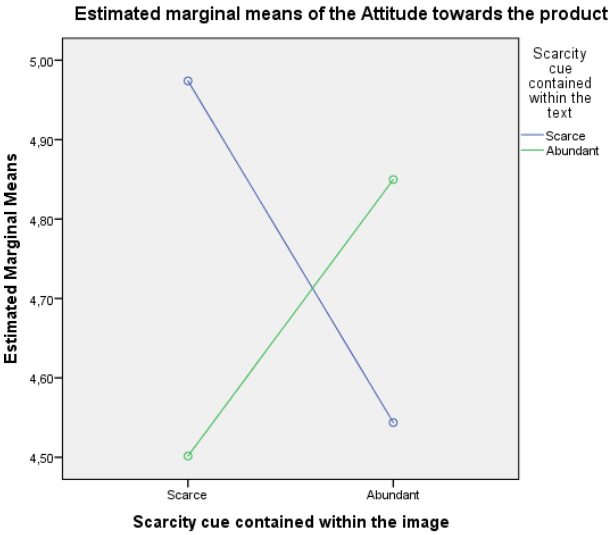
Independent variable	**Dependent variable**	**Type of relation**	**F-score**	**P-value**	**Effect size in partial η^2**
Involvement	Price perception	Trend	3,678	0,057	0,025
Involvement	Value perception	Significant	6,897	0,01	0,046
Involvement	Processing depth	Trend	3,488	0,063	0,014
Scarcity	Buying intention	Trend	4,102	0,045	0,028
Fluency	Attitude towards the product	Significant	14,701	< 0,001	0,093

4.6. Results for the factorial ANOVA tests of between-subjects effects for interaction effects

The two factorial MANOVAs revealed two significant interaction effects and two trends that are relevant to our study and shall be discussed in this section. We will use both ANOVAs and a further graphical analysis to identify the effects of the interactions upon the individual dependent variables and their nature.

4.6.1. Interaction of the two scarcity cues

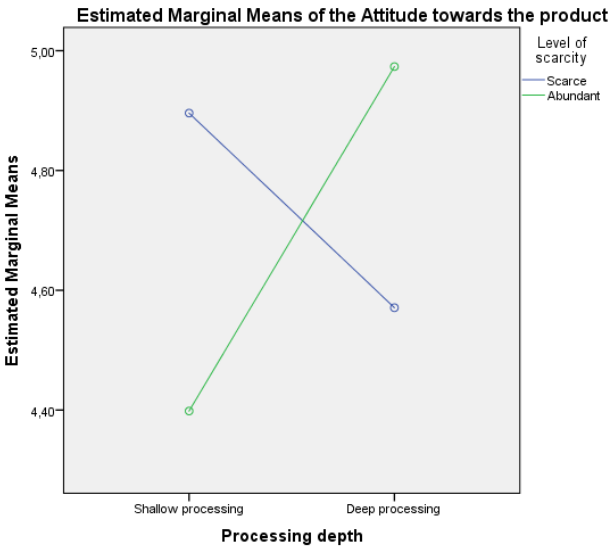
Scarcity was represented by two cues, one contained within the text and one within the imagery. Together they created conditions wherein the fluency was either high or low, based upon both cues being congruent or incongruent. An interaction effect of some sort between the two was thus expected and found. It affected the attitude towards the product significantly [F (1,144) = 10,560, p = 0,001]. The effect was small (partial η2 = 0,042). A closer graphical inspection revealed that the both cases in which the cues were congruent led to the most positive attitude towards the product. The highest score on the attitude towards the product index was found for the condition in which both cues indicated that the wine was scarce.



Graph 1. Showing the interaction effect between both scarcity cues on the attitude towards the product.

4.6.2. Interaction of scarcity and the processing depth

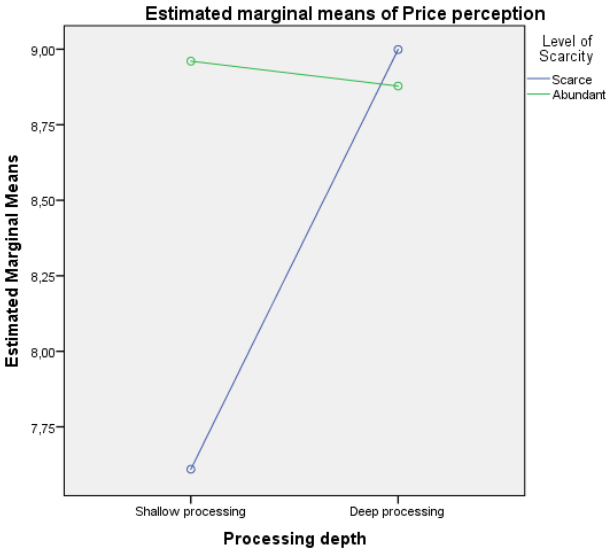
The ANOVA tests of between-subjects effects revealed one significant effect of the interaction of scarcity and processing depth on the attitude towards the product index [F (1,144) = 8,210, p = 0,005]. The effect size was small to medium (partial η2 = 0,054). Further graphical analysis revealed that the processing depth moderated the effect of scarcity on the attitude towards the product. In this case, a deeper processing led to a strong decrease in the effect of scarcity on the attitude towards the product. The abundant condition, on the other hand, saw a more positive attitude towards the product when the processing was deeper.



Graph 2. Showing the interaction effect between scarcity and the processing depth on the attitude towards the product.

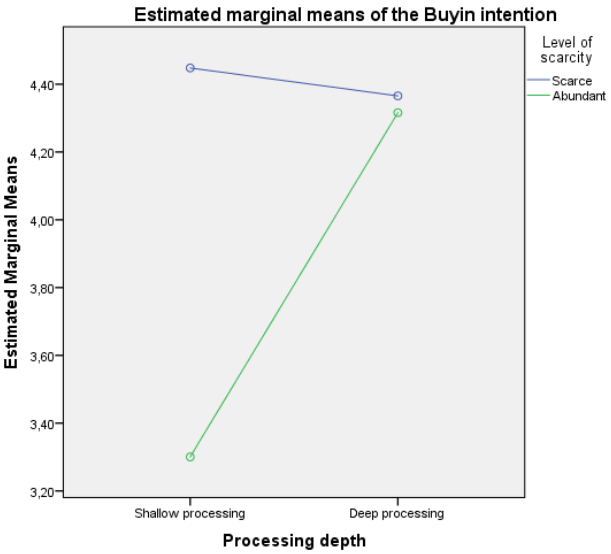
The between-subjects effects tests revealed a further two near-significant trends for the interaction of scarcity and the processing depth upon the price perception [F (1,144) = 3,576, p = 0,061] and buying likelihood [F (1,144) = 3,449, p= 0,065]. Both the effect upon the price perception (partial η2 = 0,024) and buying likelihood (partial η2 = 0,023) were small.

In the case of the interaction effect upon the price perception the moderation effect was reversed. The deeper processing led to a higher price perception of the wine in the scarce condition, while in the abundant condition the price perception only fluctuated marginally.



Graph 3. Showing the interaction effect between Scarcity and the Processing depth on the Price perception.

The interaction effect of scarcity and the processing depth upon the buying intention was in line with the effect on the attitude towards the product. Here, a deeper processing led to a slightly lower score on the buying intention index for the scarce condition. In the abundant condition, however, a deeper processing led to a higher score on the buying intention index.



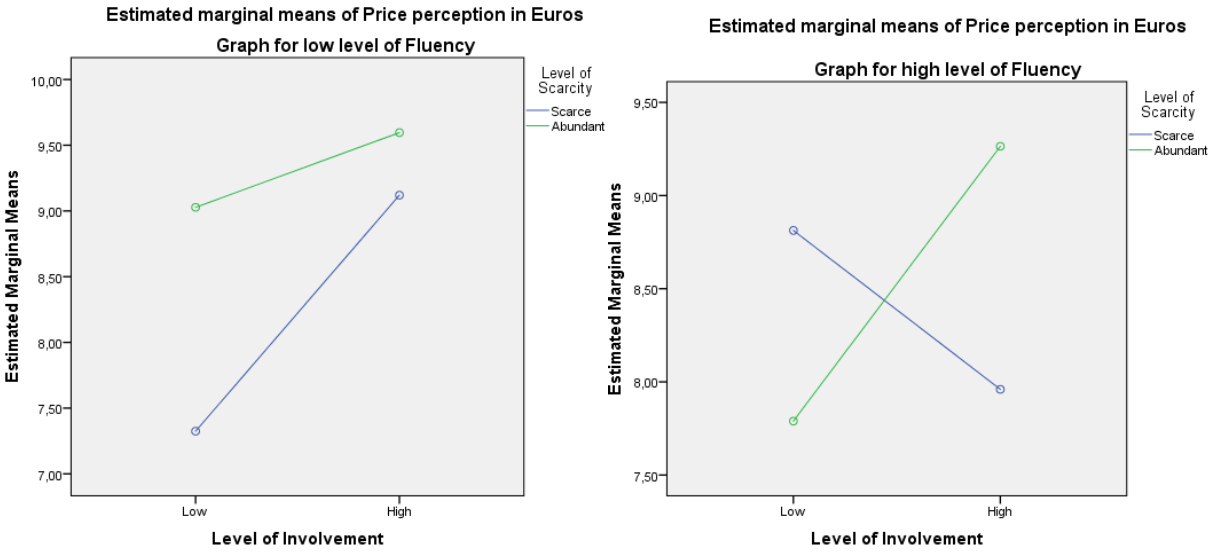
Graph 4. Showing the interaction effect between Scarcity and the Processing depth on the Buying intention.

4.6.3. Interaction of scarcity, involvement and fluency

One key result of this study is the interaction of scarcity, involvement and fluency upon the price perception [F (1,144) = 5,213, p = 0,024), value perception [F (1,144) = 6,565, p = 0,011] and buying intention [F (1,144) = 4,857, p = 0,029]. Effect sizes in the case of price perception (partial $\eta 2 = 0{,}035$) and buying intention (partial $\eta 2 = 0{,}033$) were small. In the case of the value perception the effect size was small to medium (partial $\eta 2 = 0{,}044$). We will discuss each interaction effect in turn.

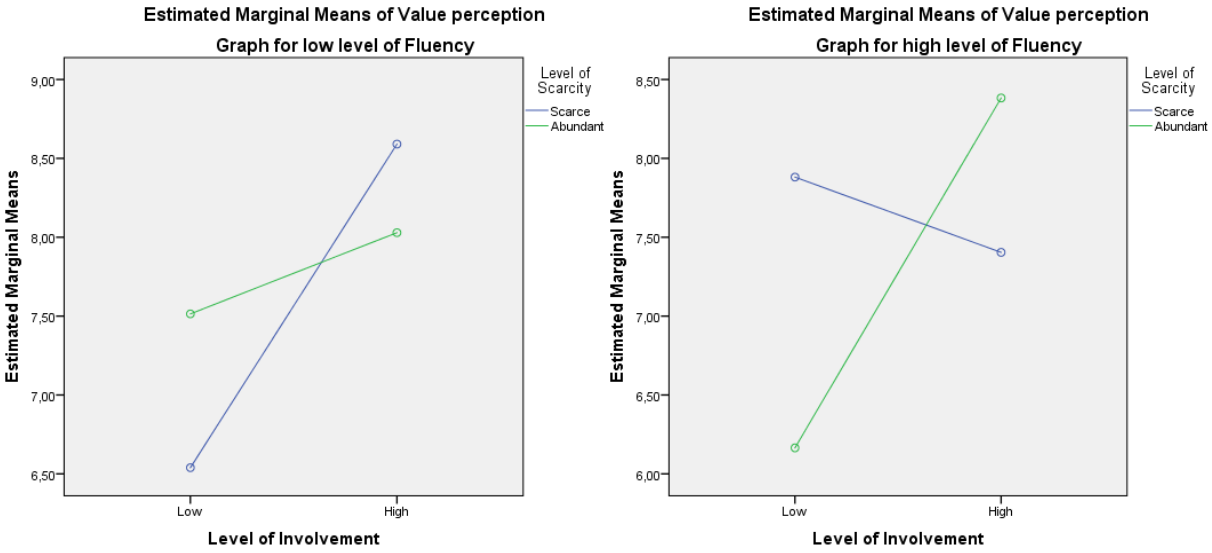
The interaction effect of scarcity, involvement and fluency on the price perception was relatively straightforward. In the low fluency condition both the scarce and abundant wines had a higher price perception when involvement was high. In the high involvement condition, this was different. There, the price perception in the scarce condition dropped by almost a whole Euro when involvement was high as opposed to low. The abundant condition followed the same path as in the low fluency condition. We thus conclude that fluency moderates the

effect of involvement on the price perception when wine was scarce. Most critically is the observation that in all cases the abundant wine had a higher price perception.



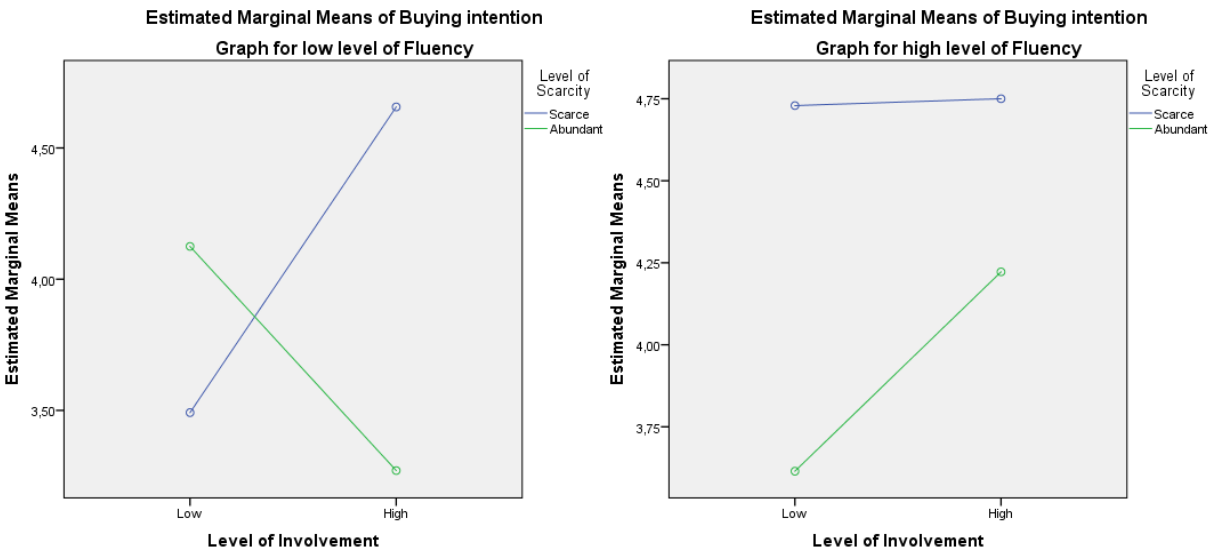
Graph 5. Set of graphs showing the interaction effect between Scarcity, Fluency and Involvement on the Price perception.

The interaction effect of scarcity, involvement and fluency on the value perception followed a similar path. When fluency was low, in both scarce and abundant conditions, a higher involvement led to a higher perceived value in Euros. When, however, fluency was high, the value perception of the scarce wines dropped when involvement was high as well. Here too, we conclude that involvement moderates the effect of scarcity on value perceptions, which is in turn moderated by fluency.



Graph 6. Set of graphs showing the interaction effect between Scarcity, Fluency and Involvement on the Value perception.

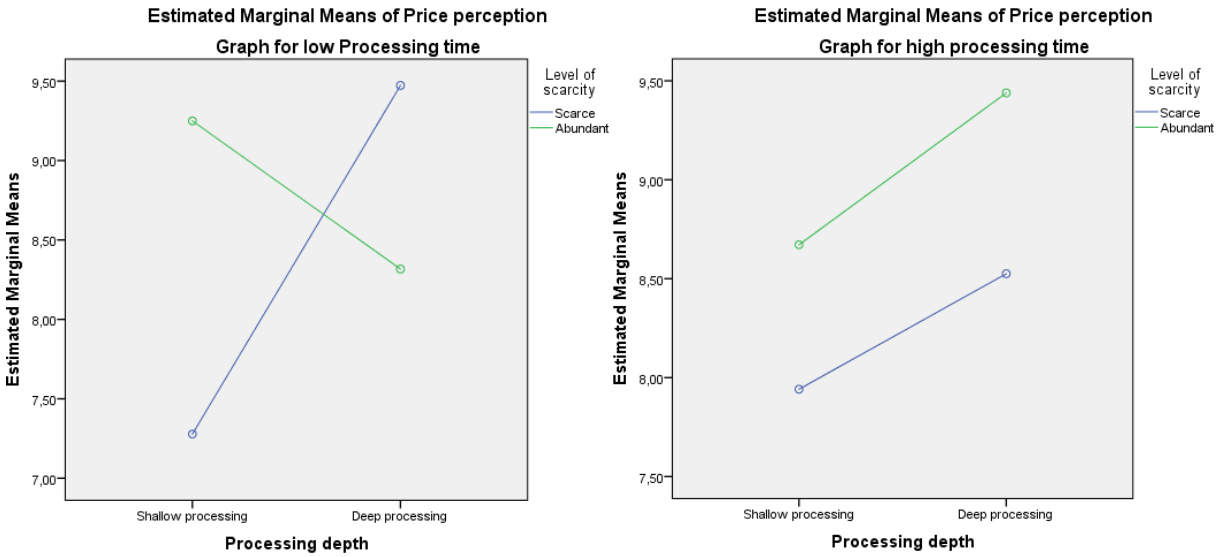
The interaction effect between scarcity, involvement and fluency on the Buying intention index deviated in two distinct ways from the two interaction effects described before. Here, the scarce condition led to the highest score on the Buying intention index when fluency was low and involvement high. In the high fluency condition, the scarce wine had a similar buying intention score across involvement conditions, where the abundant wines drastically increased in buying intention score when involvement became high. We found a similar moderation effect for involvement as with the price and value perceptions, where a higher level of involvement under most circumstances led to a higher buying intention score. Critically, in this case, the scarce condition scored consistently higher on the buying intention index than the abundant condition.



Graph 7. Set of graphs showing the interaction effect between Scarcity, Fluency and Involvement on the Buying intention.

4.6.4. Interaction of Scarcity, Processing depth and Processing Time

A closer inspection of the near-significant interaction between scarcity, processing depth and processing time in the tests of between-subjects effects analysis revealed an effect on the Price perception [F (1,144) = 4,524, p = 0,035]. The effect was small (partial η2 = 0,030). A closer graphical analysis revealed that when either the time used processing was long, or the processing was deep, the scarce condition performed best. Generally, a combination of a higher processing time and deeper processing was beneficial when wine was abundant. In this case, the effect of scarcity was moderated both by the processing depth and time, however not in a uniform way across both scarcity conditions.



Graph 8. Set of graphs showing the interaction effect of Scarcity, Processing depth and the Processing time on the Price perception.

Table 7. Significant effects and near-significant trends found within the factorial ANOVA tests of between-subjects effects. Level of significance used is 5% ($\alpha = 0,05$).

Independent variable(s)	**Dependent variable**	**Type of relation**	**F-score**	**P-value**	**Effect size in partial η^2**
Scarcity in text * Scarcity in image	Attitude towards the product	Interaction	10,560	0,001	0,042
Level of scarcity * Processing depth	Attitude towards the product	Interaction	8,210	0,005	0,054
Level of scarcity * Processing depth	Value perception	Interaction	3,576	0,061	0,024
Level of scarcity * Processing depth	Buying intention	Interaction	3,449	0,065	0,023
Level of scarcity * Level of Fluency * Level of Involvement	Price perception	Interaction	5,213	0,024	0,035
Level of scarcity * Level of Fluency * Level of Involvement	Value perception	Interaction	6,565	0,011	0,044
Level of scarcity * Level of Fluency * Level of Involvement	Buying intention	Interaction	4,857	0,029	0,033
Level of scarcity * Processing depth * Processing time	Price perception	Interaction	4,524	0,035	0,030

4.7.Answering the hypotheses

In the previous sections, we have formulated a set of 7 main hypotheses with 4 sub-hypotheses in total. All results relevant to the answering of these hypotheses have been discussed so far and shall be concluded into this section. In order to answer all hypotheses in a clear and concise manner, we will make use of a table which lists both the hypotheses and their answer. A conclusion based upon these results can be found in chapter five, the discussion.

Table 8. Showing the hypothesis and their respective answer from the results.

Number	**Hypothesis**	**Answer**	**Comment**
H1	Scarcity enhances the price perception, value perception, attitude towards the product and buying intention.	Limited support by the results	Not for all dependent variables.
H2	Fluent information about a product leads to an enhanced price perception, value perception, attitude towards the product and buying intention.	Limited support by the results	Not for all dependent variables
H3	Fluent Information about a product is processed quicker and shallower than information that is not.	Rejected	The data does not support this hypothesis.
H4	The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are moderated by the level of fluency and moderated by the processing level.	Limited support by the results	Not for all dependent variables and the role of involvement did not meet expectations.
H4.a.	Scarcity messages with a high level of fluency have a stronger effect on the price perception, value perception, attitude towards the product and buying intention through a shallower and quicker processing style, as described by Shah and Oppenheimer (2007).	Limited support by the results	The data does not support this hypothesis.

H4.b.	Scarcity messages with a high level of fluency have a stronger effect on the price perception, value perception, attitude towards the product and buying intention through a deeper and slower processing style, as described by van Rompay et al. (2010).	Limited support by the results	The data does not support this hypothesis.
H5	High levels of involvement lead to relatively deep processing and long processing times and low levels of involvement lead to relatively shallow processing and short processing times.	Limited support by the results	For the processing depth and not the processing time.
H6	The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are moderated by the level of involvement so that a low level of involvement leads to increased effects and a high level of involvement to decreased effects.	Rejected	Opposite effect found.
H7	The effects of scarcity persuasive messages on the price perception, value perception, attitude towards the product and buying intention are both moderated by the level of fluency and the level of involvement and moderated by the processing depth and time.	Rejected	The role of processing depth and time was not supported by the results.
H7.a.	Higher levels of involvement and high levels of fluency will lead to increased effects on the price perception, value perception, attitude towards the product and buying intention of scarcity persuasive messages when the processing depth and time are high	Rejected	The role of processing depth and time was not supported by the results.

H7.b.	Lower levels of involvement and high levels of fluency will lead to increased effects on the price perception, value perception, attitude towards the product and buying intention of scarcity persuasive messages when the processing depth and time are low.	Rejected	The role of processing depth and time was not supported by the results.

5. Discussion

This study set out to further explore the relationship between peripheral persuasion and fluency, based upon early findings by Shah and Oppenheimer (2007) and an article by van Rompay et al. (2010). It did so by focussing on the effects of fluency on a scarcity persuasive message and included the level of involvement, processing depth and processing time as moderators. The setting used was one that resembled a real-world situation in which a participant would visit a liquor store to buy a specific type of wine and had limited amounts of information at their disposal. The study reported mixed results and managed to confirm its proposed model in part. This chapter is used to explore the results and provide commentary to the analysis. It will open by exploring the findings on the main effects and their place within the scientific literature. This is followed by a look at the two-way and three-way interactions that were part of the hypotheses and is closed by a discussion of the main research question and the answer provided for it by the data. This is section followed by a general commentary on the study's purpose and to what extent it managed to fulfil this purpose. Afterwards, a critical look is cast upon the methodology and its merits and lessons. This is then all combined into a set of lessons and starting points for future studies and an overall evaluation of this study's value for practitioners.

5.1. Main effects and selected interactions

Within this study three independent variables played an important role and were manipulated, namely scarcity, fluency and involvement. For each of these variables a set of expectations was created and formalised in hypotheses about their main effects. In general, this study confirms the overall picture present about both fluency and the level of involvement in the scientific literature. For scarcity this picture was less congruent with literature.

5.1.1. Fluency effects found and expected within this study

Fluency is known for its ability to impact the creation and change of attitudes through the positive affective response it creates (Winkielman et al., 2003), which in turn can lead to a wide range of effects (Alter & Oppenheimer, 2009). This study confirms that image in part within its findings. Several expected effects found in more situation-specific applications of fluency, for example the effect found on the price perception by van Rompay and Pruyn (2011) when product features, name and fonts used on the labels were congruent, were absent. Furthermore, this study did not provide evidence for an effect of fluency on the processing depth or time that was expected based upon an in-depth look at fluency related studies by

Alter and Oppenheimer (2009). Nor did it moderate the effects of scarcity. What this study overall did find is that fluency affects the creation and change of attitudes strongly. Using two congruent cues that signalled a product's scarce status was enough to achieve this. Thus, this study confirms the role of fluency in attitude formation and adds to the literature by providing evidence in support of the notion that two cues with the same content in different formats can create a fluency effect. In line with ideas about both fluency and heuristic decision-making, the effect of the scarcity cues was attributed to the taste of the wine by more than 70% of the participants. Even though both a control condition and randomization ensured no part of the label, taste or name could lead or did lead to the selection of a wine. These results, and the positive results of the fluency manipulation checks, lead us to conclude that the manipulation of fluency using this new method was largely successful.

5.1.2. The level of involvement as a moderator and independent variable

The level of involvement with the outcome of a decision or evaluation is often associated with the processing style of consumers and as a moderator (Kitchen et al., 2014) of the effects of persuasion techniques. This has been the case since the 1980s (Petty et al., 1983). This study expected, in addition to its role in the overall model, the level of involvement to affect the processing style and depth directly. A more involved participant would process the information presented more deeply and take more time doing so, than one that was less involved with the outcome of his or her decision. A trend was indeed found within the results that supports this notion for the processing depth, but not for the processing time. This leaves open questions about the validity of processing depth and time as representative constructs of the processing style. This we will discuss more in-depth later. Surprisingly, this study found that a more involved participant had significantly higher price and value perceptions. They expected wines to cost significantly more and offered more money for them than participants that were less involved. The difference in the average price perception was more than 15%. Involvement did not moderate the effect of scarcity. We expected it to moderate it at the outset of the study. This can in part be attributed to the absence of some effects hypothesized for the manipulation of scarcity and will be discussed more in the next paragraph.

5.1.3. Scarcity, its manipulation and effects

Scarcity was manipulated both in a text and imagery. For the creation of the hypotheses and analysis the text-based scarcity was used as the leading scarcity cue for determining when a participant was in a scarce condition. Scarcity in form of imagery is only a relatively recent finding (van Herpen et al., 2014) and has thus only been studied to a limited degree. While all

manipulation checks indicated that the manipulation of scarcity was successful, some expected main-effects were absent. A trend was found that indicates scarcity affected the buying intention of the participants. The scientific literature however produced a wealth of effects for scarcity, based upon which the dependent variables of this study were selected. The lack of their reproduction can in part be attributed to the conditions in which the two fluency cues contradicted each other. The analysis revealed that when the cues were incongruent, that the attitude towards the product was considerably more negative. Interference caused by the incongruent cells in our design could thus be the cause of absence for some of the scarcity main effects. Where incongruency may have interfered with the scarcity manipulation, the level of involvement generally strengthened it. In line with findings from the study by van Herpen et al. (2014), we found that a higher level of involvement generally led to higher scores on the dependent variable indexes and that this effect showed in interaction with scarcity as well, although only when combined with moderation from the processing depth.

5.2.The central thesis

The main research question revolved around the idea that a fluent scarcity based persuasive message would be more effective than one that is not fluent. The results are mixed but lead us to conclude three things. Firstly, and as was discussed before, the congruency or incongruency of scarcity cues does indeed lead to a fluency effect and leads to more positive attitudes towards the manipulated product. Secondly, a scarce persuasive message can be effective when the involvement with the outcome is high, but only if the cues conflict and the level of fluency is thus low. We found that for the price perceptions, value perceptions and buying intention, a low level of fluency combined with a high level of involvement led to the highest score on the respective scales when wine was scarce. Third, when one is looking to influence the buying intention, then the use of fluent scarcity based persuasive messages is most beneficial. Under both high and low levels of involvement the scarce and fluent condition outperformed the cases in which the wine was scarce, or the cues were not fluent. Overall, we conclude that manipulating the level of fluency of a scarcity-based persuasive message does indeed lead to enhanced effects of scarcity. Furthermore, involvement does moderate this relation, but not as was expected and it does not serve as the key determinant of what type of fluency effect is to be expected. When the fluency of a scarcity-based persuasive message is low and involvement high, the result is a strong increase in price perception, value perception and buying intention. This is an unexpected finding and likely due to the absence

of significant effects of fluency and the partial absence of effects of involvement on the processing depth and time. This will be discussed more in-depth.

At its outset, this study posed the expectation and hypothesis that the processing style would be affected by the level of involvement and the fluency and that it in turn would be a key moderator in the relation between scarcity, fluency and involvement. The moderating roles of the processing depth and time as representatives for the processing style, were not supported by the results of the current study. We found results that suggest that processing time and depth do not function as adequate constructs of the processing style. Not together and not apart. When, for example, wine was scarce, a combination of either a short processing time and deep processing or long processing time and shallow processing led to the highest price perceptions. This violates most predictions from the scientific literature. Furthermore, we found no direct evidence for a main effect of fluency on the processing depth or time. The level of involvement did impact the processing time, but not the depth significantly. It seems like both constructs might represent aspects of the processing style, but that they are insufficient as its sole constructs. This is a challenge found with various operationalizations of the processing style across the scientific literature (Carpenter, 2015) and indeed one we did not solve in the current study. Processing time does however provide results that most closely follow our predictions and findings from previous studies that observed the effect of processing style on persuasive messages. Both scarcity and fluency were less or not at all effective when the processing time was relatively high and generally more effective when it was low. These findings in turn provide a possible and likely explanation for why this study was able to find statistical evidence in support of the model containing scarcity, fluency and involvement, but not for the one that added both the processing time and depth. We thus conclude that the model posed at the outset of this study was confirmed in part.

5.3.Contributions to the methodology

In terms of methodology, this study contributed in four ways. First, it used the design and procedure developed by van Herpen et al. (2009), which was, in turn, advanced in studies by Parker and Lehmann (2011) and van Herpen et al. (2014), and extended it to become an adaptable basis for persuasion studies of all sorts. This basis offers the opportunity for future studies to adopt it and extend it with different types of persuasive messages, different personal and circumstantial traits and stimuli. This study showed that it can indeed serve as such a basis, that most of the findings from the original can be replicated and that it can be adapted to resemble aspects of real-world shopping. Second, this study advanced methodology in the

fluency literature by combining both measurements of fluency and processing style related factors in one study. This led to the rejection of the hypothesis that related higher and lower levels of fluency directly to the depth of processing, which is novel within the field of study as far as the authors are aware. Third, and perhaps more importantly, it showed that it could make practical use of more direct measurements of processing style related factors, such as the processing time. Processing style related factors are not very rigid from a theoretical point of view. What does and does not constitute more intensive or superficial processing is not well-defined. This study offered a hybrid methodology in which a more direct time measurement was successfully combined with a more indirect self-reported measurement of processing depth. Fourth and finally, this study demonstrated that findings and scales from a wide array of works in English could be translated into Dutch and retain both their ability to manipulate behaviour and to measure its outcome.

5.4.Limitations and directions for further research

The current study brought to light both consistencies and inconsistencies in existing scientific literature. We close this report by discussing five limitations some recommendations for future studies. First, this study used a simulation and survey to gather consumer data. While the realism checks performed in the study showed that the study was generally believable, it is and will be a digital simulation in a survey. A follow-up study could test the setting and design used in a real-world setting and using actual shopping consumers. This would greatly benefit the scarcity and fluency literature and the generalizability of results. Second, the persuasive elements used are arguably not purely of the peripheral persuasive type. Although behaviour typically associated with peripheral persuasion was recreated, the average processing time was relatively high and could indicate that the peripheral nature of the persuasive element was not strong enough. This concern was voiced within the study by van Rompay et al. (2010) as well. Third, this study failed to link the fluency and involvement manipulations to processing depth and time measurements. This was the first attempt known to the authors at doing so, but it leaves questions about the validity of fluency and involvement influencing processing depth and time and their respective measurement instruments. Fourth, although each element was carefully stripped of any factors that could bias the participant's evaluation and then randomized, only one version of each stimulus was available. This could potentially be a threat to the generalizability of the results of this study and studies like it. Trying more than the types of wine used in this study, or different products altogether, could greatly improve this. Fifth and finally, we opened the study by measuring

the involvement with the product wine. These items included self-reported measurements of knowledge and expertise. The authors are aware that this could bias participants by priming them. When a participant indicates to be an expert on wine, it could be that this influenced their evaluations and processing style.

Two recommendations that are not connected to any limitation are presented in this last paragraph. The first of which concerns findings in studies by Kaptein and Eckles (2012) and Whittler and Manolis (2015), which were used as a reference in the design of this study. They both tested various peripheral persuasion tactics in parallel and compared their various effects and traits. One of their main conclusions was that individual consumers likely have a built-in resistance against some and a native vulnerability to other types of persuasion tactics. The procedure of this study could serve as an excellent basis for more in-depth comparisons between different types of persuasive messages and be used to build upon their findings. Second, this study tested text-image-congruency based fluency. A type of fluency where items, their meanings and various representations either match or mismatch. It did prove to work, but to a limited degree. Other fluency types may be more effective in this and other contexts. Future studies could not just compare persuasion tactics, but fluency types as well.

5.5. Implications and lessons for practitioners

Practitioners of Marketing and Communication can apply the following lessons to their work on product promotion and the sales of products. First, the alignment of the involvement level of the individual consumer is of great effect to which products appeal and why they do so. The importance of the who and why in marketing is clearly demonstrated by its adoption by professionals, like Google's Marketing team (Gevelber, 2015) and presence in the scientific literature (van Herpen et al., 2014). This study confirms the utility of taking a consumer's motivation into account. Second, two congruent scarcity cues do indeed lead to a fluency effect. This in turn does affect the attitude towards the product quite strongly and is of potential use to practitioners. Practitioners are advised to use the common textual scarcity cues in conjunction with a second scarcity cue that visually confirms the scarcity. This fits in a broader trend of cue congruency playing a role in persuasion as well, for example demonstrated by the importance of congruency in ad type and image type (Chang, 2013) and visual product features (van Rompay & Pruyn, 2011). Third, a situation in which cues are incongruent and not fluent can be beneficial to persuasion as well under certain circumstances. When one suspects that the processing of the potential audience is deep, one can use conflicting cues to increase the effectiveness of scarcity as a persuasive message.

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Appendixes

Appendix A.: The cover stories

High involvement

Stel je voor: Je werkt al enige tijd voor een bedrijf en maakt binnenkort kans op promotie. Voor een belangrijk zakendiner vraagt je leidinggevende jou om een fles wijn te halen voor zijn twee gasten. Hij vertrouwt je en verwacht dat je een passende fles wijn uitkiest. Hij vertelt je verder dat de gasten van Franse rode wijn uit de Bordeauxregio houden. Dit diner kan het verschil maken in een belangrijke deal. Alles moet dus goed verlopen. Je gaat daarom naar een slijterij voor de fles wijn.

Translation

Imagine: You work for a company for some time and are up for promotion in the near future. Your manager asks you to buy a bottle of wine for his two guests in an upcoming important business dinner. He trusts you and expects you to buy a appropriate bottle of wine. He explains to you that the guests love French red wine from the Bordeaux region. This dinner can make the difference in an important deal and so everything must go perfectly. You proceed to a liquor store to buy the bottle of wine.

Low involvement

Stel je voor: Je bent op weg naar de slijterij. Eenmaal buiten de winkel word je benaderd voor een wetenschappelijk experiment. De onderzoeker legt uit dat hij onderzoek doet naar het wijn aankoopproces en vraagt je om een fles rode Bordeauxwijn mee te nemen uit de slijterij. De fles wijn is zogenaamd bedoeld voor bij een maaltijd. Hij vergoedt je aankoop en jij helpt de wetenschap. Je besluit mee te doen en gaat de slijterij binnen.

Translation

Imagine: You are on your way to a liquor store. Once outside of the store you are approached for a scientific study. The researcher explains that he studies wine buying processes and asks you to buy one bottle of red Bordeaux wine from the liquor store. The wine is meant for a fictional dinner. He will reimburse the bought wine and you will help science in return. You decide to participate and head inside the liquor store.

Scarce condition

Eenmaal in de slijterij aangekomen zie je een aantal andere klanten en een medewerker rondlopen. Je vraagt de medewerker gelijk om hulp en hij brengt je al snel naar een schap met drie wijnen. Hij vertelt dat dit drie Franse Bordeauxwijnen zijn van een vergelijkbare prijs en kwaliteit. Bovendien passen ze ook nog eens bij de geplande maaltijd. Verder vertelt de medewerker dat één van de drie wijnen al bijna uitverkocht is en dat er bijna geen voorraad meer in de winkel is. Hij heeft ook geen voorraad meer in het magazijn staan.

Translation

Once in the liquor store, you see a few other customers and an employee. You ask the employee for help and he brings you to a shelve with three wines. He explains that these three wines are of a similar price and quality and that they all fit with the dinner. He also explains that one of the wines has nearly sold out and that the stock on the shelf has almost been depleted. There also does not seem to be any extra stock left in storage.

Abundant condition

Eenmaal in de slijterij aangekomen zie je een aantal andere klanten en een medewerker rondlopen. Je vraagt de medewerker gelijk om hulp en hij brengt je al snel naar een schap met drie wijnen. Hij vertelt dat dit drie Franse Bordeauxwijnen zijn van een vergelijkbare prijs en kwaliteit. Bovendien passen ze ook nog eens bij de geplande maaltijd. De medewerker vertelt je dat hij net alle drie de schappen heeft bijgevuld. Hij vertelt ook dat er verder nog voldoende voorraad is in het magazijn.

Translation

Once in the liquor store, you see a few other customers and an employee. You ask the employee for help and he brings you to a shelve with three wines. He explains that these three wines are of a similar price and quality and that they all fit with the dinner. The employee tells you all wine shelves have just been restocked. Furthermore, he has plenty of supply in storage.

Appendix B.: Visual stimuli

Scarce condition

Below are two examples of imagery from the visual scarce condition. Here, the same wine is made scarce, but it is moved to a random position on the shelve for each participant.

Abundant condition

Below is one example of imagery from the visual abundant condition. Here too the position of each wine was random for each participant.

Example of focus effect

One wine was subject to evaluation at a time. The order in which each wine was subjected to evaluation was random. To ensure the participant was duly aware of the subject of their evaluation, a focus effect was created as seen below. As a different wine was subjected to evaluation, the focus in the imagery moved.

Appendix C.: Textual manipulations used in the study by van Herpen et al. (2009)

Scarcity contained within a textual stimulus taken from the study by van Herpen et al.
Imagine: you want to cook an Italian meal this evening. This calls for an Italian wine. You go to the wine store to buy one. The store is full of customers. You ask an employee for help, and he shows you two Italian wines that meet your criteria. He explains that the inventory level of one is low, because this wine is in demand and he has sold several.

High involvement scenario from the study by van Herpen et al.
Imagine that a close friend, who has moved abroad, will come to visit you on Friday. It is thus a special evening, and you want to keep it that way. You are looking forward to finally having an evening to chat together, which you cannot do very often, and it should not become a common evening. You are going to buy a bottle of wine for that evening. Next, you will see three wines from which you can make a choice. A picture will depict what the bottles look like and how many are in the store, and a short description of the wines will be provided.

Appendix D.: The survey items in English

In this appendix each measurement item from the survey is listed with the construct it measures. The survey items are shown per variable.

Independent variables and manipulation checks

Involvement Manipulation check

The items are rated on a 7-point scale anchored by fully agree, agree, somewhat agree, neither agree nor disagree, somewhat disagree, disagree, fully disagree.

- It is easy for me to imagine what the effects of my choice of wine on my life would be.
- It was important for me to make a good wine choice
- A lot depended on making the right choice of wine
- Bringing the right wine was not at all important to me.
- Imagining the effects my choice of wine would have on my life is difficult.
- All in all, the effects of the choice of wine on my life would be small

The individual item scores are averaged and converted into an involvement score for each participant.

Scarcity manipulation check

The scarcity manipulation check consists of two parts. The first part measures the level of induced scarcity as an index on the constructs popularity, quality and exclusivity. The second part measures whether the scarce status of products was noticed at all and serves as the actual manipulation check.

Popularity

- Wanted - Unwanted
- Populair - Unpopulair

Quality

- High quality – Low quality
- Bad - Good

Exclusivity

- Common – Unique

- Special - Regular

The items are combined and averaged to forma score per construct.

Scarcity manipulation check for the stimuli

Two items measured whether the participant could identify the scarcity condition they were in. This was using a 7-point Likert scale anchored by fully agree, agree, somewhat agree, neither agree nor disagree, somewhat disagree, disagree, fully disagree.

- According to the employee all wine was fully stocked.
- Every wine was fully stocked in the images.

Fluency manipulation check

The scale measures the self-reported ease or difficulty of processing cues on a 7-point scale. It used the constructs order, clarity and logic. The items were combined to form an index.

- Difficult to understand – Easy to understand
- Well organized – Not at all organized
- Well structured – Not at all structured
- Logical – Illogical
- Clear – Unclear

A second part to the measurement of fluency consists of a simple item asking whether the congruent or incongruent information was noticed. This item was measured along a 5-point bipolar scale.

To what extend were the imagery you saw and the texts you read in the scenario agreeing with each other?

They conflicted strongly – They agreed fully

Dependent variables

Attitude towards the product

Three items measured along a 7-point bipolar scale anchored at both ends measured the attitude towards the product. They were combined to form an index.

- Bad – Good

- Negative – Positive
- Attractive - Unattractive

Price and value perceptions

The price and value perceptions were measured using two items. Each allowed the participant to fill in their own price.

1. What would you be willing to pay for this wine?
2. How much do you expect this wine to cost?

Buying intention

This measurement consists of one simple measurement, which asks the participant how likely it would be that they took each of the wines home measured along a 7-point bipolar scale.

How likely are you to buy wine (wine designation)?

- Very unlikely – Very likely

Demographic data and other

Self-reported processing depth

The items measure the explicit processing ease or difficulty, the ease with which the information was put into a mental image, the time spend on the decision and the effort it cost to take a decision. These questions lead to an averaged processing level index where a higher score means processing was more effortful and the level of processing higher. Reverse formatted items are scored in the opposite direction. The five bipolar items were rated upon a 7-point scale, anchored at either side.

- How would you describe the amount of effort it took to choose a wine?
  Effortless – Effortful
- How much time did you spend on your choice of wine?
  Very little time – Large amounts of time
- How would you describe your thinking when you considered which wine to choose?
  Superficial – Deep
- How would you describe your decision?
  Careful and deliberate – Careless and random

- How would you describe the speed at which you reached a decision?
  Very slow – Very quick

Involvement with wine as a product

Scale used is a Likert scale with 7 points, anchored by fully agree, agree, somewhat agree, neither agree nor disagree, somewhat disagree, disagree, fully disagree.

- Wine is important to me
- Any wine will normally do for me
- I have a strong interest in wine.
- I consider myself knowledgeable about wine
- I consider myself an expert at wine
- I buy wine often

The scores of the items are averaged to create an average wine involvement test score. This score is then used to determine the relative level of involvement with wine of participants.

Choice attribution

After the participants have made a choice and finished the scales detailing each wine's desirability, the attribution of this choice is measured. This is to inquire after the participant's reasoning and motivation to choose one wine over the other.

You evaluated a number of wines; What most significantly contributed to your evaluations?

- Wine's name
- Wine's taste
- Wine's label
- Availability
- Other, namely:

Believability check

Two items evaluated on a 7-point bipolar scale that were anchored at both sides, served to evaluate the believability of the scenario and survey in general.

I experienced the scenario and imagery as:

- Very unbelievable – Very believable
- Very unrealistic – Very realistic

Wine choice

This item served both to create a control condition for the appearance of the wine and as a reference for the measurement of the processing time. The answering of this question triggered the timer to stop, which finalized the measurement for the processing time.

You're now faced with a choice. Which of the three wines would you bring home?

Appendix E.: Results of the factorial MANOVA and factorial ANOVA tests of between-subject effects for the interaction of both scarcity cues

Between-Subjects Factors

		Value Label	N
Level of Involvement	,00	Low	124
	1,00	High	127
Scarcity Level of Image	1,00	Scarce	113
	2,00	Abundant	138
Scarcity Level of Text	1,00	Scarce	122
	2,00	Abundant	129

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
Intercept	Pillai's Trace	,976	1642,688[b]	6,000	238,000	,000	,976	9856,129	1,000
	Wilks' Lambda	,024	1642,688[b]	6,000	238,000	,000	,976	9856,129	1,000
	Hotelling's Trace	41,412	1642,688[b]	6,000	238,000	,000	,976	9856,129	1,000
	Roy's Largest Root	41,412	1642,688[b]	6,000	238,000	,000	,976	9856,129	1,000
Level of involvement	Pillai's Trace	,066	2,808[b]	6,000	238,000	,012	,066	16,850	,879
	Wilks' Lambda	,934	2,808[b]	6,000	238,000	,012	,066	16,850	,879
	Hotelling's Trace	,071	2,808[b]	6,000	238,000	,012	,066	16,850	,879
	Roy's Largest Root	,071	2,808[b]	6,000	238,000	,012	,066	16,850	,879
Scarcity manipulation in imagery	Pillai's Trace	,009	,341[b]	6,000	238,000	,915	,009	2,045	,146
	Wilks' Lambda	,991	,341[b]	6,000	238,000	,915	,009	2,045	,146
	Hotelling's Trace	,009	,341[b]	6,000	238,000	,915	,009	2,045	,146

	Roy's Largest Root	,009	,341[b]	6,000	238,000	,915	,009	2,045	,146
Scarcity manipulation in text	Pillai's Trace	,035	1,425[b]	6,000	238,000	,206	,035	8,548	,550
	Wilks' Lambda	,965	1,425[b]	6,000	238,000	,206	,035	8,548	,550
	Hotelling's Trace	,036	1,425[b]	6,000	238,000	,206	,035	8,548	,550
	Roy's Largest Root	,036	1,425[b]	6,000	238,000	,206	,035	8,548	,550
Level of involvement * Scarcity manipulation in imagery	Pillai's Trace	,012	,490[b]	6,000	238,000	,815	,012	2,942	,197
	Wilks' Lambda	,988	,490[b]	6,000	238,000	,815	,012	2,942	,197
	Hotelling's Trace	,012	,490[b]	6,000	238,000	,815	,012	2,942	,197
	Roy's Largest Root	,012	,490[b]	6,000	238,000	,815	,012	2,942	,197
Level of involvement * Scarcity manipulation in text	Pillai's Trace	,019	,781[b]	6,000	238,000	,585	,019	4,688	,307
	Wilks' Lambda	,981	,781[b]	6,000	238,000	,585	,019	4,688	,307
	Hotelling's Trace	,020	,781[b]	6,000	238,000	,585	,019	4,688	,307
	Roy's Largest Root	,020	,781[b]	6,000	238,000	,585	,019	4,688	,307
Scarcity manipulation in imagery * Scarcity manipulation in text	Pillai's Trace	,057	2,408[b]	6,000	238,000	,028	,057	14,451	,815
	Wilks' Lambda	,943	2,408[b]	6,000	238,000	,028	,057	14,451	,815
	Hotelling's Trace	,061	2,408[b]	6,000	238,000	,028	,057	14,451	,815
	Roy's Largest Root	,061	2,408[b]	6,000	238,000	,028	,057	14,451	,815
Level of involvement * Scarcity manipulation in imagery * Scarcity manipulation in text	Pillai's Trace	,005	,206[b]	6,000	238,000	,975	,005	1,236	,104
	Wilks' Lambda	,995	,206[b]	6,000	238,000	,975	,005	1,236	,104
	Hotelling's Trace	,005	,206[b]	6,000	238,000	,975	,005	1,236	,104
	Roy's Largest Root	,005	,206[b]	6,000	238,000	,975	,005	1,236	,104

a. Design: Intercept + Level of involvement + Scarcity manipulation in imagery + Scarcity manipulation in text + Level of involvement * Scarcity manipulation in imagery + Level of involvement * Scarcity manipulation in text + Scarcity manipulation in imagery * Scarcity manipulation in text + Level of involvement * Scarcity manipulation in imagery * Scarcity manipulation in text

b. Exact statistic

c. Computed using alpha = ,05

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[g]
Corrected Model	Price perception	71,733[a]	7	10,248	1,816	,085	,050	12,710	,725
	Value perception	107,015[b]	7	15,288	2,605	,013	,070	18,233	,889
	Buying intention	18,503[c]	7	2,643	,918	,493	,026	6,429	,394
	Attitude	9,807[d]	7	1,401	1,658	,120	,046	11,604	,677
	Processing time	1817,247[e]	7	259,607	1,103	,362	,031	7,724	,472
	Processing depth	10,044[f]	7	1,435	,839	,556	,024	5,870	,359
Intercept	Price perception	17147,442	1	17147,442	3038,170	,000	,926	3038,170	1,000
	Value perception	13338,051	1	13338,051	2272,493	,000	,903	2272,493	1,000
	Buying intention	3965,348	1	3965,348	1377,689	,000	,850	1377,689	1,000
	Attitude	5243,232	1	5243,232	6204,003	,000	,962	6204,003	1,000
	Processing time	325935,027	1	325935,027	1385,297	,000	,851	1385,297	1,000
	Processing depth	3739,444	1	3739,444	2185,323	,000	,900	2185,323	1,000
Level of involvement	Price perception	39,710	1	39,710	7,036	,009	,028	7,036	,752
	Value perception	77,721	1	77,721	13,242	,000	,052	13,242	,952
	Buying intention	2,091	1	2,091	,727	,395	,003	,727	,136
	Attitude	,150	1	,150	,178	,674	,001	,178	,070
	Processing time	1,430	1	1,430	,006	,938	,000	,006	,051
	Processing depth	5,968	1	5,968	3,488	,063	,014	3,488	,460
Scarcity manipulation in imagery	Price perception	2,727	1	2,727	,483	,488	,002	,483	,106
	Value perception	2,544	1	2,544	,433	,511	,002	,433	,101

	Buying intention	,906	1	,906	,315	,575	,001	,315	,086
	Attitude	,099	1	,099	,117	,733	,000	,117	,063
	Processing time	266,687	1	266,687	1,133	,288	,005	1,133	,185
	Processing depth	,169	1	,169	,099	,754	,000	,099	,061
Scarcity manipulation in text	Price perception	11,292	1	11,292	2,001	,158	,008	2,001	,291
	Value perception	2,135	1	2,135	,364	,547	,001	,364	,092
	Buying intention	4,519	1	4,519	1,570	,211	,006	1,570	,239
	Attitude	,408	1	,408	,483	,488	,002	,483	,106
	Processing time	901,077	1	901,077	3,830	,051	,016	3,830	,496
	Processing depth	,008	1	,008	,004	,947	,000	,004	,051
Level of involvement * Scarcity manipulation in imagery	Price perception	5,575	1	5,575	,988	,321	,004	,988	,168
	Value perception	5,795	1	5,795	,987	,321	,004	,987	,168
	Buying intention	1,769	1	1,769	,615	,434	,003	,615	,122
	Attitude	,092	1	,092	,109	,742	,000	,109	,062
	Processing time	18,070	1	18,070	,077	,782	,000	,077	,059
	Processing depth	1,723	1	1,723	1,007	,317	,004	1,007	,170
Level of involvement * Scarcity manipulation in text	Price perception	,249	1	,249	,044	,834	,000	,044	,055
	Value perception	3,984	1	3,984	,679	,411	,003	,679	,130
	Buying intention	1,027	1	1,027	,357	,551	,001	,357	,091
	Attitude	,095	1	,095	,112	,738	,000	,112	,063
	Processing time	139,225	1	139,225	,592	,442	,002	,592	,119
	Processing depth	1,735	1	1,735	1,014	,315	,004	1,014	,171
Scarcity manipulation in imagery * Scarcity manipulation in text	Price perception	8,915	1	8,915	1,580	,210	,006	1,580	,240
	Value perception	2,658	1	2,658	,453	,502	,002	,453	,103
	Buying intention	7,186	1	7,186	2,497	,115	,010	2,497	,350
	Attitude	8,925	1	8,925	10,560	,001	,042	10,560	,899

	Processing time	338,743	1	338,743	1,440	,231	,006	1,440	,223
	Processing depth	,066	1	,066	,039	,844	,000	,039	,054
Level of involvement * Scarcity manipulation in imagery * Scarcity manipulation in text	Price perception	,867	1	,867	,154	,696	,001	,154	,068
	Value perception	,003	1	,003	,000	,983	,000	,000	,050
	Buying intention	,430	1	,430	,149	,699	,001	,149	,067
	Attitude	,002	1	,002	,002	,965	,000	,002	,050
	Processing time	208,544	1	208,544	,886	,347	,004	,886	,155
	Processing depth	,092	1	,092	,054	,817	,000	,054	,056
Error	Price perception	1371,493	243	5,644					
	Value perception	1426,251	243	5,869					
	Buying intention	699,417	243	2,878					
	Attitude	205,368	243	,845					
	Processing time	57173,471	243	235,282					
	Processing depth	415,813	243	1,711					
Total	Price perception	19551,805	251						
	Value perception	15710,127	251						
	Buying intention	4994,000	251						
	Attitude	5895,000	251						
	Processing time	403203,010	251						
	Processing depth	4394,000	251						
Corrected Total	Price perception	1443,226	250						
	Value perception	1533,267	250						
	Buying intention	717,920	250						
	Attitude	215,175	250						
	Processing time	58990,719	250						

Processing depth	425,857	250							

a. R Squared = ,050 (Adjusted R Squared = ,022)

b. R Squared = ,070 (Adjusted R Squared = ,043)

c. R Squared = ,026 (Adjusted R Squared = -,002)

d. R Squared = ,046 (Adjusted R Squared = ,018)

e. R Squared = ,031 (Adjusted R Squared = ,003)

f. R Squared = ,024 (Adjusted R Squared = -,005)

g. Computed using alpha = ,05

Appendix F.: Results of the factorial MANOVA and factorial ANOVA tests of between-subject effects for the full model

Between-Subjects Factors

		Value Label	N
Level of Involvement	,00	Low	89
	1,00	High	87
Scarcity Level of Text	1,00	Scarce	79
	2,00	Abundant	97
Level of Fluency	1,00	Low	68
	2,00	High	108
Processing Depth median split	1,00	Shallow processing	85
	2,00	Deep processing	91
Processing time median split	1,00	Low	83
	2,00	High	93

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[c]
Intercept	Pillai's Trace	,972	1207,914[b]	4,000	141,000	,000	,972	4831,654	1,000
	Wilks' Lambda	,028	1207,914[b]	4,000	141,000	,000	,972	4831,654	1,000
	Hotelling's Trace	34,267	1207,914[b]	4,000	141,000	,000	,972	4831,654	1,000
	Roy's Largest Root	34,267	1207,914[b]	4,000	141,000	,000	,972	4831,654	1,000
Level of involvement	Pillai's Trace	,047	1,732[b]	4,000	141,000	,146	,047	6,930	,520

	Wilks' Lambda	,953	1,732[b]	4,000	141,000	,146	,047	6,930	,520
	Hotelling's Trace	,049	1,732[b]	4,000	141,000	,146	,047	6,930	,520
	Roy's Largest Root	,049	1,732[b]	4,000	141,000	,146	,047	6,930	,520
Scarcity manipulation in text	Pillai's Trace	,063	2,380[b]	4,000	141,000	,055	,063	9,521	,675
	Wilks' Lambda	,937	2,380[b]	4,000	141,000	,055	,063	9,521	,675
	Hotelling's Trace	,068	2,380[b]	4,000	141,000	,055	,063	9,521	,675
	Roy's Largest Root	,068	2,380[b]	4,000	141,000	,055	,063	9,521	,675
Level of Fluency	Pillai's Trace	,107	4,204[b]	4,000	141,000	,003	,107	16,816	,917
	Wilks' Lambda	,893	4,204[b]	4,000	141,000	,003	,107	16,816	,917
	Hotelling's Trace	,119	4,204[b]	4,000	141,000	,003	,107	16,816	,917
	Roy's Largest Root	,119	4,204[b]	4,000	141,000	,003	,107	16,816	,917
Processing Depth median split	Pillai's Trace	,031	1,145[b]	4,000	141,000	,338	,031	4,581	,353
	Wilks' Lambda	,969	1,145[b]	4,000	141,000	,338	,031	4,581	,353
	Hotelling's Trace	,032	1,145[b]	4,000	141,000	,338	,031	4,581	,353
	Roy's Largest Root	,032	1,145[b]	4,000	141,000	,338	,031	4,581	,353
Processing time median split	Pillai's Trace	,011	,405[b]	4,000	141,000	,805	,011	1,620	,142
	Wilks' Lambda	,989	,405[b]	4,000	141,000	,805	,011	1,620	,142
	Hotelling's Trace	,011	,405[b]	4,000	141,000	,805	,011	1,620	,142
	Roy's Largest Root	,011	,405[b]	4,000	141,000	,805	,011	1,620	,142
Level of involvement * Scarcity manipulation in text	Pillai's Trace	,020	,719[b]	4,000	141,000	,581	,020	2,874	,228
	Wilks' Lambda	,980	,719[b]	4,000	141,000	,581	,020	2,874	,228
	Hotelling's Trace	,020	,719[b]	4,000	141,000	,581	,020	2,874	,228
	Roy's Largest Root	,020	,719[b]	4,000	141,000	,581	,020	2,874	,228
Level of involvement * Level of Fluency	Pillai's Trace	,027	,997[b]	4,000	141,000	,412	,027	3,987	,309
	Wilks' Lambda	,973	,997[b]	4,000	141,000	,412	,027	3,987	,309
	Hotelling's Trace	,028	,997[b]	4,000	141,000	,412	,027	3,987	,309

	Roy's Largest Root	,028	,997[b]	4,000	141,000	,412	,027	3,987	,309
Level of involvement * Processing Depth median split	Pillai's Trace	,023	,837[b]	4,000	141,000	,504	,023	3,349	,262
	Wilks' Lambda	,977	,837[b]	4,000	141,000	,504	,023	3,349	,262
	Hotelling's Trace	,024	,837[b]	4,000	141,000	,504	,023	3,349	,262
	Roy's Largest Root	,024	,837[b]	4,000	141,000	,504	,023	3,349	,262
Level of involvement * Processing time median split	Pillai's Trace	,041	1,496[b]	4,000	141,000	,207	,041	5,983	,455
	Wilks' Lambda	,959	1,496[b]	4,000	141,000	,207	,041	5,983	,455
	Hotelling's Trace	,042	1,496[b]	4,000	141,000	,207	,041	5,983	,455
	Roy's Largest Root	,042	1,496[b]	4,000	141,000	,207	,041	5,983	,455
Scarcity manipulation in text * Level of Fluency	Pillai's Trace	,018	,656[b]	4,000	141,000	,624	,018	2,623	,210
	Wilks' Lambda	,982	,656[b]	4,000	141,000	,624	,018	2,623	,210
	Hotelling's Trace	,019	,656[b]	4,000	141,000	,624	,018	2,623	,210
	Roy's Largest Root	,019	,656[b]	4,000	141,000	,624	,018	2,623	,210
Scarcity manipulation in text * Processing Depth median split	Pillai's Trace	,090	3,502[b]	4,000	141,000	,009	,090	14,008	,854
	Wilks' Lambda	,910	3,502[b]	4,000	141,000	,009	,090	14,008	,854
	Hotelling's Trace	,099	3,502[b]	4,000	141,000	,009	,090	14,008	,854
	Roy's Largest Root	,099	3,502[b]	4,000	141,000	,009	,090	14,008	,854
Scarcity manipulation in text * Processing time median split	Pillai's Trace	,032	1,165[b]	4,000	141,000	,329	,032	4,661	,359
	Wilks' Lambda	,968	1,165[b]	4,000	141,000	,329	,032	4,661	,359
	Hotelling's Trace	,033	1,165[b]	4,000	141,000	,329	,032	4,661	,359
	Roy's Largest Root	,033	1,165[b]	4,000	141,000	,329	,032	4,661	,359
Level of Fluency * Processing Depth median split	Pillai's Trace	,028	1,002[b]	4,000	141,000	,409	,028	4,008	,311
	Wilks' Lambda	,972	1,002[b]	4,000	141,000	,409	,028	4,008	,311
	Hotelling's Trace	,028	1,002[b]	4,000	141,000	,409	,028	4,008	,311
	Roy's Largest Root	,028	1,002[b]	4,000	141,000	,409	,028	4,008	,311
	Pillai's Trace	,012	,426[b]	4,000	141,000	,789	,012	1,706	,147

Level of Fluency * Processing time median split	Wilks' Lambda	,988	,426[b]	4,000	141,000	,789	,012	1,706	,147
	Hotelling's Trace	,012	,426[b]	4,000	141,000	,789	,012	1,706	,147
	Roy's Largest Root	,012	,426[b]	4,000	141,000	,789	,012	1,706	,147
Processing Depth median split * Processing time median split	Pillai's Trace	,002	,066[b]	4,000	141,000	,992	,002	,263	,063
	Wilks' Lambda	,998	,066[b]	4,000	141,000	,992	,002	,263	,063
	Hotelling's Trace	,002	,066[b]	4,000	141,000	,992	,002	,263	,063
	Roy's Largest Root	,002	,066[b]	4,000	141,000	,992	,002	,263	,063
Level of involvement * Scarcity manipulation in text * Level of Fluency	Pillai's Trace	,066	2,490[b]	4,000	141,000	,046	,066	9,959	,697
	Wilks' Lambda	,934	2,490[b]	4,000	141,000	,046	,066	9,959	,697
	Hotelling's Trace	,071	2,490[b]	4,000	141,000	,046	,066	9,959	,697
	Roy's Largest Root	,071	2,490[b]	4,000	141,000	,046	,066	9,959	,697
Level of involvement * Scarcity manipulation in text * Processing Depth median split	Pillai's Trace	,028	,999[b]	4,000	141,000	,410	,028	3,998	,310
	Wilks' Lambda	,972	,999[b]	4,000	141,000	,410	,028	3,998	,310
	Hotelling's Trace	,028	,999[b]	4,000	141,000	,410	,028	3,998	,310
	Roy's Largest Root	,028	,999[b]	4,000	141,000	,410	,028	3,998	,310
Level of involvement * Scarcity manipulation in text * Processing time median split	Pillai's Trace	,006	,196[b]	4,000	141,000	,940	,006	,784	,091
	Wilks' Lambda	,994	,196[b]	4,000	141,000	,940	,006	,784	,091
	Hotelling's Trace	,006	,196[b]	4,000	141,000	,940	,006	,784	,091
	Roy's Largest Root	,006	,196[b]	4,000	141,000	,940	,006	,784	,091
Level of involvement * Level of Fluency * Processing Depth median split	Pillai's Trace	,063	2,368[b]	4,000	141,000	,056	,063	9,471	,672
	Wilks' Lambda	,937	2,368[b]	4,000	141,000	,056	,063	9,471	,672
	Hotelling's Trace	,067	2,368[b]	4,000	141,000	,056	,063	9,471	,672
	Roy's Largest Root	,067	2,368[b]	4,000	141,000	,056	,063	9,471	,672
Level of involvement * Level of Fluency * Processing time median split	Pillai's Trace	,049	1,819[b]	4,000	141,000	,129	,049	7,274	,542
	Wilks' Lambda	,951	1,819[b]	4,000	141,000	,129	,049	7,274	,542
	Hotelling's Trace	,052	1,819[b]	4,000	141,000	,129	,049	7,274	,542

	Roy's Largest Root	,052	1,819[b]	4,000	141,000	,129	,049	7,274	,542
Level of involvement * Processing Depth median split * Processing time median split	Pillai's Trace	,017	,622[b]	4,000	141,000	,647	,017	2,489	,200
	Wilks' Lambda	,983	,622[b]	4,000	141,000	,647	,017	2,489	,200
	Hotelling's Trace	,018	,622[b]	4,000	141,000	,647	,017	2,489	,200
	Roy's Largest Root	,018	,622[b]	4,000	141,000	,647	,017	2,489	,200
Scarcity manipulation in text * Level of Fluency * Processing Depth median split	Pillai's Trace	,035	1,271[b]	4,000	141,000	,284	,035	5,085	,390
	Wilks' Lambda	,965	1,271[b]	4,000	141,000	,284	,035	5,085	,390
	Hotelling's Trace	,036	1,271[b]	4,000	141,000	,284	,035	5,085	,390
	Roy's Largest Root	,036	1,271[b]	4,000	141,000	,284	,035	5,085	,390
Scarcity manipulation in text * Level of Fluency * Processing time median split	Pillai's Trace	,026	,958[b]	4,000	141,000	,433	,026	3,833	,298
	Wilks' Lambda	,974	,958[b]	4,000	141,000	,433	,026	3,833	,298
	Hotelling's Trace	,027	,958[b]	4,000	141,000	,433	,026	3,833	,298
	Roy's Largest Root	,027	,958[b]	4,000	141,000	,433	,026	3,833	,298
Scarcity manipulation in text * Processing Depth median split * Processing time median split	Pillai's Trace	,064	2,427[b]	4,000	141,000	,051	,064	9,706	,684
	Wilks' Lambda	,936	2,427[b]	4,000	141,000	,051	,064	9,706	,684
	Hotelling's Trace	,069	2,427[b]	4,000	141,000	,051	,064	9,706	,684
	Roy's Largest Root	,069	2,427[b]	4,000	141,000	,051	,064	9,706	,684
Level of Fluency * Processing Depth median split * Processing time median split	Pillai's Trace	,013	,468[b]	4,000	141,000	,759	,013	1,872	,158
	Wilks' Lambda	,987	,468[b]	4,000	141,000	,759	,013	1,872	,158
	Hotelling's Trace	,013	,468[b]	4,000	141,000	,759	,013	1,872	,158
	Roy's Largest Root	,013	,468[b]	4,000	141,000	,759	,013	1,872	,158
Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing Depth median split	Pillai's Trace	,051	1,885[b]	4,000	141,000	,116	,051	7,542	,560
	Wilks' Lambda	,949	1,885[b]	4,000	141,000	,116	,051	7,542	,560
	Hotelling's Trace	,053	1,885[b]	4,000	141,000	,116	,051	7,542	,560
	Roy's Largest Root	,053	1,885[b]	4,000	141,000	,116	,051	7,542	,560

Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing time median split	Pillai's Trace	,018	,656[b]	4,000	141,000	,623	,018	2,625	,210
	Wilks' Lambda	,982	,656[b]	4,000	141,000	,623	,018	2,625	,210
	Hotelling's Trace	,019	,656[b]	4,000	141,000	,623	,018	2,625	,210
	Roy's Largest Root	,019	,656[b]	4,000	141,000	,623	,018	2,625	,210
Level of involvement * Scarcity manipulation in text * Processing Depth median split * Processing time median split	Pillai's Trace	,022	,805[b]	4,000	141,000	,524	,022	3,219	,253
	Wilks' Lambda	,978	,805[b]	4,000	141,000	,524	,022	3,219	,253
	Hotelling's Trace	,023	,805[b]	4,000	141,000	,524	,022	3,219	,253
	Roy's Largest Root	,023	,805[b]	4,000	141,000	,524	,022	3,219	,253
Level of involvement * Level of Fluency * Processing Depth median split * Processing time median split	Pillai's Trace	,006	,205[b]	4,000	141,000	,935	,006	,821	,093
	Wilks' Lambda	,994	,205[b]	4,000	141,000	,935	,006	,821	,093
	Hotelling's Trace	,006	,205[b]	4,000	141,000	,935	,006	,821	,093
	Roy's Largest Root	,006	,205[b]	4,000	141,000	,935	,006	,821	,093
Scarcity manipulation in text * Level of Fluency * Processing Depth median split * Processing time median split	Pillai's Trace	,018	,642[b]	4,000	141,000	,634	,018	2,567	,206
	Wilks' Lambda	,982	,642[b]	4,000	141,000	,634	,018	2,567	,206
	Hotelling's Trace	,018	,642[b]	4,000	141,000	,634	,018	2,567	,206
	Roy's Largest Root	,018	,642[b]	4,000	141,000	,634	,018	2,567	,206
Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing Depth median split * Processing time median split	Pillai's Trace	,010	,362[b]	4,000	141,000	,835	,010	1,450	,131
	Wilks' Lambda	,990	,362[b]	4,000	141,000	,835	,010	1,450	,131
	Hotelling's Trace	,010	,362[b]	4,000	141,000	,835	,010	1,450	,131
	Roy's Largest Root	,010	,362[b]	4,000	141,000	,835	,010	1,450	,131

a. Design: Intercept + Level of involvement + Scarcity manipulation in text + Level of Fluency + Processing Depth median split + Processing time median split + Level of involvement * Scarcity manipulation in text + Level of involvement * Level of Fluency + Level of involvement * Processing Depth median split + Level of involvement * Processing time median split + Scarcity manipulation in text * Level of Fluency + Scarcity manipulation in text * Processing Depth median split + Scarcity manipulation in text * Processing time median split + Level of Fluency * Processing Depth median split + Level of Fluency * Processing time median split + Processing Depth median split * Processing time median split + Level of involvement * Scarcity manipulation in text * Level of Fluency + Level of involvement * Scarcity manipulation in text * Processing Depth median split + Level of involvement * Scarcity manipulation in text * Processing time median split + Level of involvement * Level of Fluency * Processing Depth median split + Level of involvement * Level of Fluency * Processing time median split + Level of involvement * Processing Depth median split * Processing time median split + Scarcity manipulation in text * Level of Fluency * Processing Depth median split + Scarcity manipulation in text * Level of Fluency * Processing time median split + Scarcity manipulation in text * Processing Depth median split * Processing time median split + Level of Fluency * Processing Depth median split * Processing time median split + Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing Depth median split + Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing time median split + Level of involvement * Scarcity manipulation in text * Processing Depth median split * Processing time median split + Level of involvement * Level of Fluency * Processing Depth median split * Processing time median split + Scarcity manipulation in text * Level of Fluency * Processing Depth median split * Processing time median split + Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing Depth median split * Processing time median split

b. Exact statistic

c. Computed using alpha = ,05

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[e]
Corrected Model	Price perception	255,382[a]	31	8,238	1,559	,043	,251	48,321	,979
	Value perception	290,837[b]	31	9,382	1,599	,035	,256	49,570	,982
	Buying intention	117,755[c]	31	3,799	1,246	,194	,212	38,629	,929
	Attitude	39,577[d]	31	1,277	1,484	,064	,242	45,991	,971
Intercept	Price perception	10350,692	1	10350,692	1958,461	,000	,932	1958,461	1,000
	Value perception	7983,719	1	7983,719	1360,729	,000	,904	1360,729	1,000
	Buying intention	2354,696	1	2354,696	772,442	,000	,843	772,442	1,000

	Attitude	3095,752	1	3095,752	3597,468	,000	,962	3597,468	1,000
Level of involvement	Price perception	19,440	1	19,440	3,678	,057	,025	3,678	,478
	Value perception	40,464	1	40,464	6,897	,010	,046	6,897	,742
	Buying intention	1,922	1	1,922	,631	,428	,004	,631	,124
	Attitude	,059	1	,059	,069	,794	,000	,069	,058
Scarcity manipulation in text	Price perception	13,192	1	13,192	2,496	,116	,017	2,496	,348
	Value perception	,229	1	,229	,039	,844	,000	,039	,054
	Buying intention	12,503	1	12,503	4,102	,045	,028	4,102	,521
	Attitude	,078	1	,078	,091	,763	,001	,091	,060
Level of Fluency	Price perception	3,363	1	3,363	,636	,426	,004	,636	,124
	Value perception	1,538	1	1,538	,262	,609	,002	,262	,080
	Buying intention	6,849	1	6,849	2,247	,136	,015	2,247	,319
	Attitude	12,651	1	12,651	14,701	,000	,093	14,701	,968
Processing Depth median split	Price perception	14,899	1	14,899	2,819	,095	,019	2,819	,385
	Value perception	15,722	1	15,722	2,680	,104	,018	2,680	,369
	Buying intention	7,599	1	7,599	2,493	,117	,017	2,493	,348
	Attitude	,546	1	,546	,634	,427	,004	,634	,124
Processing time median split	Price perception	,147	1	,147	,028	,868	,000	,028	,053
	Value perception	3,219	1	3,219	,549	,460	,004	,549	,114
	Buying intention	,800	1	,800	,262	,609	,002	,262	,080
	Attitude	,064	1	,064	,074	,785	,001	,074	,058
Level of involvement * Scarcity manipulation in text	Price perception	2,640	1	2,640	,500	,481	,003	,500	,108
	Value perception	2,931	1	2,931	,499	,481	,003	,499	,108
	Buying intention	4,472	1	4,472	1,467	,228	,010	1,467	,225
	Attitude	,360	1	,360	,418	,519	,003	,418	,098
	Price perception	6,616	1	6,616	1,252	,265	,009	1,252	,199

Level of involvement * Level of Fluency	Value perception	1,487	1	1,487	,253	,615	,002	,253	,079
	Buying intention	,221	1	,221	,072	,788	,001	,072	,058
	Attitude	1,815	1	1,815	2,110	,149	,014	2,110	,303
Level of involvement * Processing Depth median split	Price perception	,648	1	,648	,123	,727	,001	,123	,064
	Value perception	,044	1	,044	,007	,931	,000	,007	,051
	Buying intention	4,989	1	4,989	1,637	,203	,011	1,637	,246
	Attitude	,039	1	,039	,045	,832	,000	,045	,055
Level of involvement * Processing time median split	Price perception	1,459	1	1,459	,276	,600	,002	,276	,082
	Value perception	17,064	1	17,064	2,908	,090	,020	2,908	,395
	Buying intention	1,014	1	1,014	,333	,565	,002	,333	,088
	Attitude	,004	1	,004	,005	,943	,000	,005	,051
Scarcity manipulation in text * Level of Fluency	Price perception	7,856	1	7,856	1,486	,225	,010	1,486	,228
	Value perception	2,889	1	2,889	,492	,484	,003	,492	,107
	Buying intention	1,728	1	1,728	,567	,453	,004	,567	,116
	Attitude	,982	1	,982	1,141	,287	,008	1,141	,186
Scarcity manipulation in text * Processing Depth median split	Price perception	18,900	1	18,900	3,576	,061	,024	3,576	,468
	Value perception	5,093	1	5,093	,868	,353	,006	,868	,152
	Buying intention	10,515	1	10,515	3,449	,065	,023	3,449	,454
	Attitude	7,065	1	7,065	8,210	,005	,054	8,210	,812
Scarcity manipulation in text * Processing time median split	Price perception	1,496	1	1,496	,283	,596	,002	,283	,083
	Value perception	3,943	1	3,943	,672	,414	,005	,672	,129
	Buying intention	12,460	1	12,460	4,087	,045	,028	4,087	,519
	Attitude	,063	1	,063	,073	,787	,001	,073	,058
Level of Fluency * Processing Depth median split	Price perception	15,426	1	15,426	2,919	,090	,020	2,919	,396
	Value perception	15,363	1	15,363	2,618	,108	,018	2,618	,362
	Buying intention	1,951	1	1,951	,640	,425	,004	,640	,125

	Attitude	,045	1	,045	,052	,820	,000	,052	,056
Level of Fluency * Processing time median split	Price perception	2,519	1	2,519	,477	,491	,003	,477	,105
	Value perception	,004	1	,004	,001	,978	,000	,001	,050
	Buying intention	,081	1	,081	,027	,871	,000	,027	,053
	Attitude	,423	1	,423	,491	,485	,003	,491	,107
Processing Depth median split * Processing time median split	Price perception	,017	1	,017	,003	,954	,000	,003	,050
	Value perception	,335	1	,335	,057	,811	,000	,057	,056
	Buying intention	,062	1	,062	,020	,887	,000	,020	,052
	Attitude	,055	1	,055	,064	,801	,000	,064	,057
Level of involvement * Scarcity manipulation in text * Level of Fluency	Price perception	27,553	1	27,553	5,213	,024	,035	5,213	,621
	Value perception	39,052	1	39,052	6,656	,011	,044	6,656	,727
	Buying intention	14,805	1	14,805	4,857	,029	,033	4,857	,591
	Attitude	,150	1	,150	,175	,676	,001	,175	,070
Level of involvement * Scarcity manipulation in text * Processing Depth median split	Price perception	18,332	1	18,332	3,469	,065	,024	3,469	,456
	Value perception	19,321	1	19,321	3,293	,072	,022	3,293	,438
	Buying intention	,620	1	,620	,203	,653	,001	,203	,073
	Attitude	,501	1	,501	,582	,447	,004	,582	,118
Level of involvement * Scarcity manipulation in text * Processing time median split	Price perception	1,204	1	1,204	,228	,634	,002	,228	,076
	Value perception	1,969	1	1,969	,336	,563	,002	,336	,089
	Buying intention	1,155	1	1,155	,379	,539	,003	,379	,094
	Attitude	,010	1	,010	,011	,915	,000	,011	,051
Level of involvement * Level of Fluency * Processing Depth median split	Price perception	12,089	1	12,089	2,287	,133	,016	2,287	,324
	Value perception	,893	1	,893	,152	,697	,001	,152	,067
	Buying intention	,293	1	,293	,096	,757	,001	,096	,061
	Attitude	3,841	1	3,841	4,464	,036	,030	4,464	,555
	Price perception	13,661	1	13,661	2,585	,110	,018	2,585	,359

Level of involvement * Level of Fluency * Processing time median split	Value perception	24,672	1	24,672	4,205	,042	,028	4,205	,531
	Buying intention	2,665	1	2,665	,874	,351	,006	,874	,153
	Attitude	,035	1	,035	,040	,841	,000	,040	,055
Level of involvement * Processing Depth median split * Processing time median split	Price perception	11,612	1	11,612	2,197	,140	,015	2,197	,313
	Value perception	5,232	1	5,232	,892	,347	,006	,892	,155
	Buying intention	1,245	1	1,245	,408	,524	,003	,408	,097
	Attitude	,160	1	,160	,186	,667	,001	,186	,071
Scarcity manipulation in text * Level of Fluency * Processing Depth median split	Price perception	,102	1	,102	,019	,890	,000	,019	,052
	Value perception	,076	1	,076	,013	,910	,000	,013	,051
	Buying intention	2,801	1	2,801	,919	,339	,006	,919	,159
	Attitude	1,614	1	1,614	1,876	,173	,013	1,876	,275
Scarcity manipulation in text * Level of Fluency * Processing time median split	Price perception	,024	1	,024	,005	,946	,000	,005	,051
	Value perception	,456	1	,456	,078	,781	,001	,078	,059
	Buying intention	8,198	1	8,198	2,689	,103	,018	2,689	,370
	Attitude	,906	1	,906	1,053	,307	,007	1,053	,175
Scarcity manipulation in text * Processing Depth median split * Processing time median split	Price perception	23,908	1	23,908	4,524	,035	,030	4,524	,561
	Value perception	18,738	1	18,738	3,194	,076	,022	3,194	,427
	Buying intention	,130	1	,130	,043	,836	,000	,043	,055
	Attitude	2,560	1	2,560	2,975	,087	,020	2,975	,403
Level of Fluency * Processing Depth median split * Processing time median split	Price perception	7,304	1	7,304	1,382	,242	,010	1,382	,215
	Value perception	3,051	1	3,051	,520	,472	,004	,520	,111
	Buying intention	,756	1	,756	,248	,619	,002	,248	,078
	Attitude	,514	1	,514	,597	,441	,004	,597	,120
Level of involvement * Scarcity manipulation in	Price perception	1,288	1	1,288	,244	,622	,002	,244	,078
	Value perception	2,732	1	2,732	,466	,496	,003	,466	,104

text * Level of Fluency * Processing Depth median split	Buying intention	1,186	1	1,186	,389	,534	,003	,389	,095
	Attitude	3,087	1	3,087	3,587	,060	,024	3,587	,469
Level of involvement * Scarcity manipulation in text * Level of Fluency * Processing time median split	Price perception	,371	1	,371	,070	,792	,000	,070	,058
	Value perception	8,580	1	8,580	1,462	,229	,010	1,462	,225
	Buying intention	1,894	1	1,894	,621	,432	,004	,621	,123
	Attitude	,789	1	,789	,917	,340	,006	,917	,158
Level of involvement * Scarcity manipulation in text * Processing Depth median split * Processing time median split	Price perception	5,537	1	5,537	1,048	,308	,007	1,048	,174
	Value perception	5,255	1	5,255	,896	,346	,006	,896	,156
	Buying intention	1,372	1	1,372	,450	,503	,003	,450	,102
	Attitude	1,120	1	1,120	1,301	,256	,009	1,301	,205
Level of involvement * Level of Fluency * Processing Depth median split * Processing time median split	Price perception	,705	1	,705	,133	,716	,001	,133	,065
	Value perception	,436	1	,436	,074	,786	,001	,074	,058
	Buying intention	,184	1	,184	,060	,806	,000	,060	,057
	Attitude	,009	1	,009	,011	,918	,000	,011	,051
Scarcity manipulation in text * Level of Fluency * Processing Depth median split * Processing time median split	Price perception	1,259	1	1,259	,238	,626	,002	,238	,077
	Value perception	2,460	1	2,460	,419	,518	,003	,419	,099
	Buying intention	,015	1	,015	,005	,945	,000	,005	,051
	Attitude	,001	1	,001	,001	,971	,000	,001	,050
Level of involvement * Scarcity manipulation in text * Level of Fluency *	Price perception	,053	1	,053	,010	,920	,000	,010	,051
	Value perception	1,279	1	1,279	,218	,641	,002	,218	,075
	Buying intention	4,411	1	4,411	1,447	,231	,010	1,447	,223

Processing Depth median split * Processing time median split	Attitude	,251	1	,251	,292	,590	,002	,292	,084
Error	Price perception	761,056	144	5,285					
	Value perception	844,882	144	5,867					
	Buying intention	438,967	144	3,048					
	Attitude	123,917	144	,861					
Total	Price perception	13801,552	176						
	Value perception	10981,343	176						
	Buying intention	3429,000	176						
	Attitude	4125,000	176						
Corrected Total	Price perception	1016,438	175						
	Value perception	1135,718	175						
	Buying intention	556,722	175						
	Attitude	163,494	175						

a. R Squared = ,251 (Adjusted R Squared = ,090)

b. R Squared = ,256 (Adjusted R Squared = ,096)

c. R Squared = ,212 (Adjusted R Squared = ,042)

d. R Squared = ,242 (Adjusted R Squared = ,079)

e. Computed using alpha = ,05